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ABSTRACT

Ten chapters that present and evaluate alternative models for State school finance plans and for Federal aid, and school fiscal policy recommendations comprise this document, Volume Five of the NEFP series. Volume One of this series deals with educational needs, Volume Two with economic factors and education, Volume Three with various aspects of financial planning for educational services, and Volume Four with the impact of educational financing programs. Also included in this document are a description of districts in the prototype State and a summary of the findings reported in the preceding volumes. The conclusions and recommendations set forth in this volume represent the consensus of the central staff and the Project Committee. Funding for this research was provided by an ESEA Title V grant. (Related documents are EA 003 537-540, 543, and 673.) (MLF)

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# Alternative Programs For Financing Education

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NATIONAL EDUCATIONAL
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Volume 5

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# *Alternative Programs for Financing Education*

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NATIONAL EDUCATIONAL FINANCE PROJECT
Gainesville, Florida 32601
1971

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# Preface

The National Educational Finance Project was initiated by the United States Office of Education in June, 1968 and the planned termination date was May 31, 1972. The Project was funded for approximately $2,000,000. All of this sum was provided by the Office of Education with the exception of $175,000 which was allocated by the Department of Agriculture for the purpose of studying the financing of the School Food Service Program. This is the first comprehensive national study of school finance since 1933.

The purposes of the National Educational Finance Project were to: (1) identify the dimensions of educational need in the nation; (2) identify target populations with special educational needs; (3) measure cost differentials among different educational programs; (4) relate the variations in educational needs and costs to the ability of school districts, states and the federal government to support education; (5) analyze economic factors affecting the financing of education; (6) evaluate present state and federal programs for the financing of education; and (7) construct alternative school finance models, both state and federal, and analyze the consequences of each.

The National Educational Finance Project was designed as a cooperative research project. The state departments of all fifty states have participated in the project by providing the information requested by project researchers.

The project was administered through the Florida State Department of Education and the University of Florida at Gainesville. The central staff was located at the University of Florida.

A Project Committee was appointed to develop the research design for the project, to set policies and to assist in doing the research. Following were the members of the Project Committee: Edgar L. Morphet, University of California, Berkeley; Erick L. Lindman, University of California, Los Angeles; William McLure, University of Illinois; J. Alan Thomas, University of Chicago; and James A. Kelly, Teachers College, Columbia University.

An Advisory Committee was appointed to provide liaison with certain organizations that were doing research relevant to school finance. The members of that committee were: Will Myers, Advisory Committee on Inter-governmental Relations; Eugene McLoone (later replaced by Jean Flanigan), National Education Association; Henry Cone, Education Commission of the States; and James Gibbs, United States Office of Education.

Since this project deeply involved all fifty state education agencies, there was a need for direct counsel and advice from these agencies. Therefore, nine states dispersed throughout the forty-eight adjacent states were selected as a representative sample and the chief state school officer of each of these states was requested to name a member of a Coordinating Committee to provide direct contact with state departments of education. The members of this committee were: Herman O. Myers, Florida; Thomas P. Wilburn, Michigan; S. Walter Harvey, Minnesota; Paul R. Fillion, New Hampshire; John W. Polley, New York; Delos D. Williams, Oregon; T. B. Webb, Tennessee; Warren Hitt (succeeded by M. L. Brockette), Texas; and Walter D. Talbott, Utah. These committees rendered invaluable assistance to the researchers on the project.

When the President's Commission on Finance was appointed, Norman Karsh, Executive Director of the Commission, was invited to attend all meetings of the central staff of the National Educational Finance Project with the Project Committee and the Advisory Committee. He accepted this invitation and rendered valuable service in providing needed liaison between the Commission and the Project.

The research for the project was conducted by the central staff, the Project Committee and other specialists in school finance whose services were made available by the institutions of higher learning that employed them. Eleven special studies were subcontracted to experts on educational finance at institutions of higher learning located throughout the United States. This policy made it possible for the National Educational Finance Project to obtain the services of experts who were not free to leave their positions and work at the headquarters of the central staff. Following is a list of those special studies.

1. *Early Childhood and Basic Elementary and Secondary Education.* Directed by William P. McLure, University of Illinois.
2. *Educational Programs for Exceptional Children.* Directed by Richard A. Rossmiller, University of Wisconsin.
3. *Educational Programs for the Culturally Deprived.* Directed by Arvid J. Burke, State University of New York, Albany and James A. Kelly and Walter I. Garms, Teachers College, Columbia University.
4. *Financing Vocational Education in the Public Schools.* Directed by Erick L. Lindman, University of California, Los Angeles.
5. *Financing Adult and Continuing Education.* Directed by J. Alan Thomas, University of Chicago.
6. *The Community College: Target Population, Program Costs and Cost Differentials.* Directed by James L. Wattenbarger, University of Florida.
7. *Financing Public Elementary and Secondary School Facilities in the United States.* Directed by W. Monfort Barr, Indiana University.
8. *The National School Food Service and Nutrition Education Project.* Directed by Robert J. Garvue, Florida State University.
9. *Pupil Transportation.* Directed by Dewey Stollar, University of Tennessee.
10. *Fiscal Capacity and Educational Finance.* Directed by Richard A. Rossmiller, University of Wisconsin.
11. *The Relationship of School District Organization to State Aid Distribution Systems.* Directed by Clifford P. Hooker, University of Minnesota.

With the exception of Special Study Number 9, the researchers for each of these projects produced a publication reporting their findings. All of these special studies, including Special Study Number 9 are summarized in Volume 3 of the National Educational Finance Project described below.

In addition to the special studies, five numbered volumes and one unnumbered volume were published. Following is a brief description of each of these volumes.

1. Volume 1. *Dimensions of Educational Need.* The project staff believed that any study of educational finance should begin with a study of educational needs. Therefore, the project started with a projection of educational needs for the decade ahead by program areas and target populations for those areas. These projections were made by experts in educational administration assisted by experts in instruction for each program area and presented in Volume 1.
2. Volume 2. *Economic Factors Affecting the Financing of Education.* In developing the research design for the National Educational Finance Project the need for exploring the economic factors affecting the financing of education became apparent. Therefore, an advisory committee on the economics of education consisting of the following economists was appointed: Irving J. Goffman, University of Florida; James M. Buchanan, Virginia Polytechnic Institute; Selma Mushkin, Georgetown University; and Thomas O. Ribich, University of North Carolina. This committee was requested to develop a chapter outline of a publication dealing with the economics of education and to recommend outstanding economists from other universities to assist them in producing this publication.

   The services of the following additional economists were obtained to assist in writing Volume 2: Kenneth E. Boulding, University of Colorado; Theodore W. Schultz, University of Chicago; J. Ronnie Davis, Iowa State University; Mary Jean Bowman, University of Chicago; Charles S. Benson, University of California, Berkeley; Henry M. Levin, Stanford University; Harvey E. Brazer, University of Michigan; and John F. Due, University of Illinois. The analyses of the economic factors affecting the financing of education made by these economists are reported in Volume 2.
3. Volume 3. *Planning to Finance Education.* This volume summarizes the findings of all of the special studies (satellite projects) listed above.

4. Volume 4. *Status and Impact of Educational Finance Programs.* This volume summarizes the research conducted by the central staff for the project. Those works include: evaluation of existing state support programs, the impact on equalization of educational opportunity of existing federal appropriations for the public schools, the impact of state aid programs on different population classifications of school districts, the ability and effort of school districts and states to support education, the effect on equalization of educational opportunity of local non-property taxes for schools and the relationships between revenue allocations and educational needs as reflected by achievement scores.
5. Volume 5. *Alternative Programs for Financing Education.* This volume is devoted to a summarization of the findings reported in Volumes 1, 2, 3 and 4; the presentation and evaluation of alternative models for state school finance plans; the presentation and evaluation of alternative models for federal aid; and recommendations on school fiscal policy. In Volumes 1 to 4, no attempt was made by the central staff and the Project Committee to arrive at complete agreement on conclusions and recommendations. Each researcher had complete freedom to report his findings, conclusions and recommendations. It is believed by the project staff that decision-makers on educational policy should have complete access to all points of view and to variations in research methodologies used. The conclusions and recommendations set forth in Volume 5 represent the consensus of the central staff and the Project Committee. It should not be assumed from this statement that every member of the central staff and every member of the Project Committee agreed with every single recommendation and conclusion. However, the conclusions and recommendations reported in Volume 5 do represent the consensus of the central staff and the Project Committee.
6. *Personal Income by School Districts in the United States.* This unnumbered publication presents detailed information on personal income by income class for each school district in the United States. This is the first time that this type of information for all school districts in the

> United States has been made available. The detailed statistics presented in this publication provide a valuable data bank for many types of research.

The following persons (not including a number of research associates) have served on the central staff of the National Educational Finance Project (for different periods of time) during the four years of its operation.

> Roe L. Johns, Project Director, University of Florida; Kern Alexander, Associate Director, University of Florida; Richard A. Rossmiller, Finance Specialist, University of Wisconsin; Dewey Stollar, Finance Specialist, University of Tennessee; Forbis Jordan, Finance Specialist, Indiana University; Richard G. Salmon, Finance Specialist, Oklahoma State University; Gerald Boardman, Systems Analyst, University of Florida; William Briley, Computer Specialist, University of Florida; Oscar Hamilton, Finance Specialist, Assistant Superintendent for Business, Manatee County, Florida School System.

Finally, we wish to acknowledge our debt to the following persons whose cooperation and assistance made this project possible:

> Harry Phillips, James Gibbs and Dave Phillips of the United States Office of Education; Floyd Christian, Commissioner of Education of the State of Florida, the administering state, and James T. Campbell, Philip Shaw and Ralph Sharp of the Florida State Department of Education; Bert Sharp, Dean of the College of Education, University of Florida and Ralph Kimbrough, Chairman of the Department of Educational Administration, University of Florida; and all fifty chief state school officers and their staff members who assisted us in gathering the data necessary for this study.

Roe L. Johns
Kern Alexander

## CHAPTER 1

# *Basic Values and Beliefs*

This volume contains a summary of the findings of the National Educational Finance Project, an evaluation of present state and federal provisions for the financing of the public schools and an analysis and evaluation of alternative state and federal models for the financing of education. Recommendations grow out of evaluations and evaluations are inevitably based on values and goals. Therefore, it is appropriate that we set forth the basic values and beliefs upon which the evaluations and recommendations of the National Educational Finance Project are based. The remainder of this chapter is devoted to this task.

### Equalization of Educational Opportunity

We believe that the opportunity to obtain a public education appropriate to the individual needs of children and youth should be substantially equal. We believe that the educational opportunity of every individual should be a function of the total taxable wealth of the state and not limited primarily to the taxing ability in the local school district. Numerous studies have shown that educational opportunities vary widely within most states and that these variations are due principally to variation in wealth among the school districts of a state.

Children and youths vary widely in their educational needs.

Many different types of educational programs are required to meet these needs. These programs also vary widely in per pupil cost. Furthermore, sparsity and/or density of population affect the unit costs of education. In order to provide substantial financial equalization of educational opportunity, necessary variations in the unit costs of education as well as variation in the wealth of districts must be taken into account in a state's financing plan.

Acceptance of the belief that substantially equal educational opportunity should be provided for all pupils requires that we support a policy of general federal aid for the public schools. There are substantial variations among the states in their financial ability to support education. If we support the proposition that the quality of public education, which a state provides, should be a function of the total taxable wealth of the state, it seems logical that we should also support the proposition that the total taxable wealth of the nation should be utilized to ensure that an adequate quality of public education is provided in every state. Under-educated, disadvantaged people move from state to state creating educational problems wherever they go. Each state has a vested interest in the quality of education provided in other states. Therefore, the federal government as well as state and local governments must be concerned not only with the equalization of educational opportunity but also with the quantity and quality of public education. We believe in an economic system based on free enterprise but that system is not really "free" without equality of educational opportunity.

## Social Mobility

We believe that public education should tend to remove the barriers between caste and class and promote social mobility. That is the essence of the American dream. Every child regardless of his race, national origin, religion or the economic condition of his parents should be given an equal chance in the public schools to develop his talents to the fullest in order that he may have equal access to the benefits of the American social, political and economic system. This goal cannot be achieved under a system of financing education which promotes the segregation of pupils in schools by race, religion or economic class. Any type of "voucher plan" or other type of plan for using public funds to support private schools which tends to segregate pupils in schools by race, by religion, or by economic class is subversive of the American dream. We recognize the right of parents to use their own resources to support private schools segregated by religion or economic or social class but public funds should not be appropriated to serve private purposes under any guise.

## The Economy and Education

We believe that an adequate investment in public education is essential to economic growth. Expenditures for education are an investment in people as well as a consumption expenditure. Education in this technological age has become essential to the growth of the economy and the survival of the individual.

*Equity of Tax Structure.* We believe that the public schools should be supported by an equitable tax structure. Usually, equity is considered to require: "(1) equal treatment of equals; (2) distribution of the overall tax burden on the basis of ability to pay, as measured by income, by wealth, by consumption; (3) exclusion from tax of persons in the lowest income groups, on the grounds that they have no taxpaying capacity; and (4) a progressive overall distribution of tax relative to income, on the basis that tax capacity rises more rapidly than income. . . ."[1] The present tax structure supporting the public schools falls far short of meeting the equity test.

In 1970-71 approximately 7 percent of public school revenue was derived from the federal government, 41 percent from state sources and 52 percent from local sources. Approximately 98 percent of all tax revenue raised by local school districts is derived from local property taxes. The property tax is the most regressive of any of the major types of taxes. Federal and state nonproperty taxes are more equitable than local property taxes. Therefore, the goal of improving the tax structure for the public schools must be attained primarily by increasing the percent of revenue provided from state and federal sources.

*Accountability.* We believe that the educational output should be maximized per dollar of financial input. Educational accountability involves not only teachers and educational administrators, but it also involves Congress, state legislatures, boards of education, parents and pupils. Congress may attach conditions and constraints on federal appropriations which make it impossible for boards of education to obtain maximum benefit from these appropriations. State legislatures may fail to provide an efficient school district organization and may enact financial legislation which rewards inefficiency or penalizes efficiency on the part of local districts. Legislatures may also pass laws which impose requirements and constraints on local boards of education which prevent them from obtaining maximum benefits from educational funds. Some boards of education have provided more harrassment than lay leadership of the schools. Some parents have done little to encourage their children to study, and some pupils have failed to take advantage of their educational opportunities. We believe that administrators and teachers should be responsible and accountable to the citizens for their activities but they are not the only ones accountable for the productivity of the schools. We believe that professional educators should carefully evaluate the effectiveness of their own activities and should have the freedom to adapt and change when the evidence indicates that productivity would be increased by so doing.

*Resource Allocation.* We believe that the gross national product should be allocated in such a manner as to maximize the benefits therefrom. We believe that the market economy is the most efficient method of allocating our production when the benefits are divisible. Benefits are divisible when those who consume the goods and services are the exclusive beneficiaries therefrom. At the present time, approximately two-thirds of our gross national product is allocated through the market economy. But the benefits of education, as well as many other government services, are not divisible. Therefore, maximum efficiency in the allocation of the gross national product to these services can be obtained only through public policy decisions. These decisions must be made through the political process.

Theoretically, government bodies should make these decisions on a cost-benefit basis. Unfortunately, data are not available to enable legislative bodies to make most important allocative decisions on this basis. In each session of Congress, and in each session of a state legislature, the members are faced with making decisions concerning the total amount of governmental services to provide and how much to provide for each service. Hopefully, these decisions will be made on the basis of careful studies of needs and relative benefits.

The National Educational Finance Project is concerned primarily with the financing of the public schools. However, we are not insensitive to the needs for other governmental services, or the fiscal capacity of the nation and the states. One cannot educate pupils in the way we desire in a nation which has lost its freedom; or in an environment of polluted air and water; or in a nation with depleted resources; or in a society with large numbers of people suffering from poverty or poor health; or in a nation with inadequate public safety; or in a nation with inadequate transportation. All of these problems and many more must be dealt with realistically by the Congress and state legislatures. Unfortunately, some provisions made by Congress for the financing of certain governmental services have not been based on either need or relative benefits but upon matching formulas based on the unsound concept "the more you spend for this service the more federal funds you get." While the stated purpose of this policy is to stimulate state and local effort, the effect is to cause a mis-allocation of resources in some instances. Some state legislatures have provided state appropriation on the same type of matching basis.

Any federal or state formula which allocates funds to lower levels of government for any governmental service including education, on "the more you spend the more you get" basis is likely to cause an inefficient allocation of resources. It is rational for central governments to require that lower levels of government make a reasonable effort in proportion to their ability to support a governmental service, but this requirement has a far different impact on resource allocation than matching formulas based on unlimited expenditure or matching formulas which ignore differences in taxpaying ability.

## Governance of Education

Following are some important concepts concerning the governance of education:

*Control.* We believe that decisions concerning education should be made by the lowest level of government that can efficiently make that decision. By that, we mean that a decision should not be made by the federal government if it can efficiently be made by the states and a decision should not be made by the state if it can efficiently be made by local school districts. Each higher level of government should impose its power on the lower one only to establish general policies for the common good, but not to destroy that diversity which enriches without harming others.

Unfortunately, the federal government and a number of the states have occasionally enacted financial legislation incorporating central controls which prevent the most efficient use of the funds appropriated. There is no logical reason why the level of government which levies the taxes and appropriates the funds must make all of the decisions concerning their use. The presumption is that the taxes were levied and the funds appropriated to obtain desired educational outputs rather than to create central bureaucracies to exercise power that could more efficiently be exercised at lower levels of government.

*District Organization.* We do not believe that school district lines should be gerrymandered so as to segregate pupils by wealth, race, social or economic class. Constitutionally, education is a state responsibility and, therefore, the states should not permit the establishment and continuation of school districts for the local governance of education which were deliberately created, or are being deliberately perpetuated, for the purpose of segregating pupils by race, wealth and social or economic class. There is abundant evidence that many such districts exist in the United States. The goal of equalization of educational opportunity cannot be attained in states that maintain a discriminatory district organization.

We believe that school districts should be organized in a manner which will achieve the greatest possible efficiency in the expenditure of school funds. It is impossible to obtain economies of scale in small inefficient districts. There is no inherent right of the local people to establish school districts. Legally, school districts are subdivisions of the state created to perform a state function. Small, inefficient school districts (especially those districts maintaining high schools) frequently have among the highest per pupil expenditures in a state and provide the most limited educational services. It is almost impossible for the state to provide a sound state-wide plan for school financing in a state with an inefficient district organization.[2]

*Federalism.* We believe in the concept of federalism as applied to education. We believe that the federal government, the state governments and local school districts all have appropriate roles to play in providing for public education. The concern about education is so pervasive and the impact of education so vital that no level of government can have exclusive responsibility for public education. If the federal government plays its proper role, state governments are strengthened and if state governments play their proper roles, local school governments are better enabled to perform their responsibility for operating the schools and if local governments play their role properly, the whole nation is strengthened. Under the concept of federalism, each level of government strengthens rather than weakens the other levels of government. The interaction and cooperation of federal, state, and local governments with each other should stimulate desirable changes and innovations and increase educational productivity.

*Democracy and Education.* We have faith in American democracy and believe that a broadly based and adequately supported system of public education is essential to the preservation of "a government of the people, by the people, and for the people." We believe that our republic based on the democratic concepts of the rights of man and the responsibilities of government in a free society offers the best hope for achieving the goals of the American society. We have recently extended the suffrage to younger persons and more and more important decisions are being made by the ballot and by representatives of the people elected by ballot. These decisions can be made wisely only by an enlightened citizenry. One person equals one vote and the vote of an ignorant man counts as much as the vote of an educated man. The safety of a government by the people lies in minimizing ignorance. Minimizing ignorance not only contributes to the success of popular government but it tends to reduce poverty, crime and dependence on public and private charity.

The values, beliefs and goals described above provide the rationale for the evaluations and recommendations presented in the following chapters of this volume.

## FOOTNOTES

1. John F. Due, Chapter 10 of *Economic Factors Affecting the Financing of Education*, Gainesville, Fla., Roe L. Johns, et al., eds, National Educational Finance Project, 1970, p. 293.

2. There is evidence that some districts may be made too large for maximum efficiency.

## CHAPTER 2

# *Economics and the Financing of Education*

As education has become an ever larger component of the public budget, particularly at state and local government levels, interest has grown in the short-run and long-run effects on the economy of expenditures for education. This new field of study has acquired the name "economics of education." This phrase did not generally appear in textbooks or discussions on school finance until the late 1950's and is still treated perfunctorily by many educators. However, the economics of education contributes a new and rigorous perspective which may help to improve decisions concerning the way public schools are financed.

Activities associated with what may be thought of as the "education industry" engage a significant portion of the economic resources of the United States. During 1969-70, for example, a total of $66.8 billion was spent by educational institutions in the United States and an estimated six million persons were employed by these institutions.[1] Public elementary and secondary schools alone expended $39.5 billion and employed over three million persons. Thus, by practically any criterion, education is a major user of economic resources. And since the educational industry has accounted for a significant and increasing portion of the gross national product, it has in recent years, attracted the attention of a number of economists as well as professional educators.

In this chapter we shall consider briefly some of the economic aspects of education, drawing heavily upon the material prepared by economists for an earlier publication in the NEFP series,[2] as well as upon the work of others who have written on various aspects of the economics of education. Our discussion will apply primarily to elementary and secondary education. We shall first consider education as an economic good or commodity giving special attention to some of its characteristic attributes. Attention will then be turned to the concept of education as human capital, to the rate of return on investment in education, and to the relationship between education and economic growth. The chapter will be concluded with an examination of some applications of economic analysis which might be employed to achieve more efficient utilization of the resources devoted to education and a discussion of some of the alternatives to existing organizational arrangements for education which have been advanced.

## EDUCATION AS AN ECONOMIC GOOD

Economics deals with the allocation and utilization of scarce resources. The notion of scarce resources is basic, for it implies that for such resources there exist alternative uses. The economist is concerned with allocating scarce resources in a manner which maximizes the satisfactions gained by consumers. For the economist, the ultimate in efficiency will be achieved when scarce resources are utilized in such ways that any change in their allocation among alternative uses would reduce the total satisfaction of consumers. Obviously, the resources consumed by education could be devoted to other uses, so the proper allocation of resources to education and the efficient use of the resources which are allocated to education is a legitimate concern of the economist.

Some may question whether education can be regarded as a commodity. The answer is a qualified "yes!," for it has a price and is bought and sold. However, as a commodity education has a number of somewhat unique characteristics—some arising from the fact that it is produced and consumed in a complex sociological matrix and some arising from the nature of education itself.

## Demand Versus Need for Education

Since the two terms are used so frequently, it is important that we distinguish between the concept of demand and the concept of need. Demand, as used in economics, refers to a functional relationship between the price of a commodity and the quantity of the commodity which will be purchased. The demand for most commodities is susceptible to objective measurement and can be quantified with considerable precision. Demand is a subjective concept only to the extent that it measures the relative value that consumers place upon a given commodity in comparison with other things for which they could spend their money. Thus, (assuming the demand for it is elastic) as the price of a commodity increases the amount purchased will generally decrease, for other commodities tend to become more attractive. In short, the demand for a commodity usually declines as its price increases and vice versa.

The concept of need, on the other hand, involves an essentially subjective determination of the amount of a given commodity or service that "ought" to be provided. The supply of most public goods and services, for example, highways, police and fire protection, and education, reflects an administrative and/or legislative judgment with respect to the amount of a given good or service that should be provided to best serve the general welfare of society. The judgments of public officials—legislators, executives, or both—rather than the operation of the market, determine the kind and amount of goods and service that will be made available to consumers—whether or not they are willing to pay the cost and, hence, whether or not they "demand" the commodity.

Application of the concept of need to determine the supply of goods and services enables public officials to circumvent one of the great drawbacks of the market. Namely, that individual consumers typically act only in their own self interest, which is not always in the best interests of society. By utilizing the concept of need, public officials can decide upon the kind and amount of education, police and fire protection, highways, and the like which they believe will best serve the general welfare of society. The *need* for educational service for handicapped children, for example, may be far greater than the *demand*. Such services are often quite expensive and the parents of handicapped children often are not in a position to afford them. Public officials may decide that the general welfare of society will best be served by appropriating public funds to provide educational services for handicapped children. It is in this way that the concept of need is employed in determining the supply of public goods and services.

Musgrave has identified two classes of goods which are satisfied through the public sector of the economy, social goods and merit goods.[3] Social goods are those which, by their very nature, cannot be supplied effectively by the market because they are equally available to all persons whether or not they pay for them —for example, national defense and the judicial system. Merit goods are those which could be provided through the market, but which are thought to be so important to the general welfare of society that their provision cannot be left to the vagaries of the marketplace. Education is a prime example of a merit good. The maintenance of an educational system in which all citizens have free access to at least a minimum level of education is thought to be so vital to the maintenance of democratic self-government that education is financed primarily through the public budget.

There is no economic reason which would prevent education from being supplied entirely through the market. Consumers (households) could purchase education for their children from privately operated schools just as they now purchase many other goods and services. It is likely, however, that the amount of education which would be purchased in the market by households would be considerably less than optimal in terms of the general welfare of society. Thus, we have chosen to finance education through the public budget to a large extent. In effect, we subsidize the production of education. The difference between what consumers (households) would spend for education if it could be purchased only in the market at its full cost, and the total amount of money which is expended for education in the private and public sectors combined, may be thought of as a subsidy. The purpose of this subsidy is, of course, to insure that at least a minimal level of education will be made available to each consumer (household).

The nature of the relationship between the price of education and the demand for education is of considerable practical importance, for it will largely determine the size of the subsidy which will be required to make available the desired quantity of education. If supply and demand are relatively unresponsive to price (inelastic) so that a relatively large change in price is required to produce a given change in demand, a rather large subsidy will be required. If, on the other hand, supply and demand are quite responsive to price (elastic) so that a relatively small change in price is required to produce a given change in demand, only a small subsidy will be required. Unfortunately, relatively little is known about the nature of the relationship between the price of education and the demand for education.

Research concerning the relationship between the income level of a household and its expenditure for education (the income elasticity of demand for education) suggests that at subsistence or low income levels an increase in disposable household income will not result in proportionately greater expenditures for education, probably because other necessities of life have a higher priority; at middle income levels an increase in disposable household income will result in proportionately greater expenditures for education; and at high income levels an increase in disposable household income will again result in proportionately lower expenditures for education, probably because the range of feasible expenditures for education is limited.[4] (By proportionately lower, we mean that the percentage increase in expenditure for education will be less than the percentage increase in disposable household income.) These research findings imply that income subsidies to low income households are not likely to increase their propensity to spend (pay taxes) for education, whereas an increase in the income level of middle income families (or an increase in the percentage of middle income families) can be expected to result in a greater inclination to purchase (pay taxes for) education. Thus, a social policy which aims at providing a guaranteed minimum level of income, while it may be laudable on other grounds, will not go far toward solving the problem of financing education.

### The Consumers of Education

A second characteristic of education which makes it a somewhat unusual commodity is the great diversity of the consumers of education. (By consumers of education we refer to households—students and their families—the units most directly involved in what is generally termed "formal education.") Consumers of formal education range from the child attending nursery school through the adolescent attending secondary school, the young adult attending college or vocational school, the middle-aged person retraining for a new job, to the recent retiree attending classes in which he hopes to learn how to cope with the problems of retirement. One set of questions which is immediately posed by the existence of such a diverse array of consumers relates to their reasons for attending the various formal educational programs. Some students expect to reap immediate financial returns; others seek only personal enjoyment and satisfaction. Some students attend voluntarily; some attend primarily because others (for example, their parents) expect them to do so; and some attend only under compulsion or duress (for example, because of sanctions imposed by compulsory attendance laws).

For those who attend school voluntarily with an expectation of receiving greater financial return, the application of market principles in pricing education poses no great problem. Presumably, they will be willing to pay for their education so long as the anticipated returns are greater than the cost. As a matter of fact, several commercial organizations operating in the private sector do provide job training and other educational services on precisely this basis. The market model is also generally appropriate for situations in which the consumer is interested primarily in personal enjoyment, for example, recreation. However, a case can be made for at least a partial public subsidy if one purpose of the educational activity is to provide safe and wholesome outlets for youthful exuberance, as is often true of recreation programs for children and youth.

In the case of students attending colleges or vocational schools, it often is difficult to delineate clearly between the extent to which an educational program yields a direct economic return to the student, the extent to which it yields purely personal satisfaction to the student, and/or the extent to which society at large, (rather than the immediate consumer) is benefited. If society at large benefits substantially from the education an individual receives, there is some justification for a public subsidy. And even when education yields direct financial benefits to the individual, it can be argued that the public budget should provide credit (for example, through guaranteed loans) for those individuals who are unable to finance their education from personal savings and who are unable to secure credit from existing financial institutions.

A persuasive case for financing education from the public budget can be made when school attendance is essentially involuntary, as, for example, under statutes which make school attendance compulsory for children within a given age range. Such laws place an exceedingly important constraint on the operation of the market, for they eliminate for the individual consumer the alternative of deciding not to attend school. While compulsory school attendance need not eliminate competition in education (the child may attend a private school, for example), it does clearly imply that the state must regulate education to insure protection of the student from unqualified teachers and inadequate curricula since he no longer has the alternative of refusing to purchase education. Compulsory school attendance laws clearly imply the need for a state subsidy of education, for if school attendance is required then the state has at least a moral obligation to see to it that a minimum level of adequate education is available to all who are required to attend school.

Compulsory attendance laws represent only one type of constraint on consumer decisions. An even more direct constraint resides in the fact that most decisions concerning the kind and amount of schooling to be obtained are made by parents and not by the children who are the actual consumers. Parents generally determine what school a child will attend and what course of study he will pursue. For this reason, and because neither parents nor children typically have much knowledge about alternative choices, the consumer preference model has serious shortcomings when applied to education.

## The Output of Education

The foregoing considerations inevitably force one to consider the question of what is the product (or output) of education, for the market model implicitly assumes that one's decision concerning whether or not to buy (or to buy more) depends upon what he thinks he is getting for his money. The output of most enterprises, though not all of them, is tangible, concrete, and short-lived; the output of education often is intangible, abstract, and as long-lived as the individual in whom it is embodied. Although some would claim that the output of education is useful knowledge, this answer provides little help in assessing the quantity, much less the quality, of the products of education. It is very difficult to assess the utility of knowledge during the learning process, for the ultimate test is at some point in the future—and in the case of knowledge gained in elementary and secondary schools, in the relatively distant future.

At this juncture it is appropriate to consider some of the problems involved in measuring the output of the educational enterprise. Almost all educational programs have multiple objectives and outputs, and all educational activities contribute in varying degree to the quantity and quality of these outputs. In the absence of tested and proven human learning theory, it is not possible to determine the extent to which a given activity contributes to each component of educational output, much less to a student's gain in total knowledge. One approach to the problem of measuring educational output has been to test for evidence that certain components of knowledge—for example, reading speed and comprehension, English usage, and ability to recall facts and figures—have been "learned." This approach suffers the disadvantage of failing to acknowledge that educational outputs involve both cognitive and affective dimensions. That is, the values, attitudes and behaviors acquired as a result of the educational process may be at least as important as the knowledge measured by standardized tests.

Another approach to the problem of measuring educational output has been to assume that a relationship exists between exposure to and assimilation of knowledge—that is, days or years of school attendance are viewed as proxies for knowledge gained. Neither approach is entirely satisfactory. There is no assurance that the components of knowledge measured in the first approach will prove to be useful in either an economic or a philosophical sense and, perhaps more important, this approach virtually ignores some of the social and behavioral components of knowledge which may be even more useful. In the latter approach the assumption that a positive correlation exists between time spent in learning and the amount and value of knowledge gained is, at best, tenuous and, at worst, fallacious.

### Education: A Craft Enterprise

Even the casual observer is struck by the heavy reliance upon labor in the educational enterprise. There has been little substitution of technology for human labor in education, at least when compared with other major industries. In fact, the machines which are used in education are often regarded as "frills." Conventional wisdom asserts that learning is a uniquely personal process which requires extensive interaction between teacher and pupil. Actually, very little is known about the process of human learning. This means that we know little about how greater utilization of technology in education might affect acquisition of knowledge—not to mention acquisition of attitudes.

The heavy emphasis upon labor is directly reflected in school budgets. It is not unusual for 80 to 85 percent of a school's operating budget to be allocated for salaries, with salaries of teachers alone accounting for 60 to 65 percent of current operating costs. It is easy to explain why school costs have grown so rapidly in recent years. The success of teachers' organizations in securing higher salaries for teachers, the effects of a sharply increasing demand for teachers as a consequence of the post-World War II "baby boom," the increased rates of high school completion, and the inroads of inflation all have contributed prominently to the rising cost of education.

Higher wages for workers can be justified on economic grounds if they are paralleled by increases in productivity, i.e., higher output per worker, or if their wages are low in comparison with those of other workers. In most industries higher output per worker has been obtained by utilizing improved technology—by substituting machine for hand production so that a worker can produce more in a given period of time. Since the utilization of improved technology has been a minor factor in education, it is understandable why the output per teacher may not have increased markedly. Admittedly, output in education is difficult to measure, but we do have accurate statistics concerning one aspect of the educational process in the form of pupil-teacher ratios. If pupil-teacher ratios are regarded as a proxy measure of output per worker, then productivity in education has changed very little over the past decade. If anything, it has decreased. However, pupil-teacher ratios are, at best, inadequate measures of output and are not even satisfactory measures of process, for they reveal nothing of the quality of interaction between the teacher and the pupil. In any event, from an economic viewpoint, education, with its limited use of technology and its heavy reliance on labor, does not appear to be an efficient enterprise. In the absence of valid and reliable measures of output, the charge that education is inefficient is difficult to refute.

Entry into the labor market in education is quite closely regulated by the state through its licensure requirements. One must be licensed to teach. This, of course, is not unique to the profession of education. The state licenses practitioners in most professions (medicine, law, dentistry, pharmacy, etc.) and craft unions also effectively control entry into many trades through apprenticeship requirements.

## Externalities and Spillovers

Education yields direct benefits to students and their families—for example, the increased earning potential which is associated with increases in the level of schooling completed. These may be termed internal or private benefits, since they accrue to the student or to his family. Education also conveys benefits to other families in the community and to the society at large—for example, by increasing indirectly the productivity of persons other than the student himself. (It also should be noted that additional costs to society may arise from the consequences of lack of education—for example, higher welfare costs.) The benefits that accrue to individuals other than the student or his family may be termed external or social benefits. Externalities arise when goods or services either confer benefits or impose costs on persons other than the consumer or the producer. Education is generally thought to be characterized by substantial externalities because it affects so many people who do not buy it directly, although there is little direct evidence on this point.

The importance of the existence of externalities lies in the fact that private decisions concerning whether or not to purchase education will be made solely on the basis of internal benefits. The resulting level of supply of education will not be economically efficient because the external benefits which accompany education will not be taken into consideration in the individual student-parent decision. Consequently, too few resources will be allocated to education. In other words, the decision of a student or his family to invest in his education will be based on the anticipated direct benefits to the student and will disregard any external benefits which may be conferred on other families or on the community in general.

Some of the external benefits of education are economic in nature; others are social in nature. Among the economic benefits are improvement of the environment in which production takes place, greater flexibility and adaptability of the labor force, and greater ability to develop technical improvements and incorporate them into production processes. Conversely, externalities of a negative nature, such as unemployment and crime, may result from the lack of education.

It is difficult to attach an economic value to the broad social benefits which are associated with education, although they may be far more important than the private benefits over the long haul. There is general agreement, for example, that an educated citizenry is a requisite for democratic self-government. Education also is recognized as a major instrument for promoting equality of opportunity and is probably more effective than any other instrument in compensating for social or economic disadvantages of children.

It is the external benefits associated with education that provide the most persuasive case for subsidizing education with public funds. As we have seen, the externalities are not considered in private investment decisions, and because they are ignored the optimum allocation of resources to education will not be achieved. Financing education primarily from public funds permits the external benefits of education to be given proper consideration in the process of allocating resources.

Closely related to externalities are geographic spillovers. Geographic spillovers refer to the benefits of education which accrue to persons located outside the boundaries of a school district (as distinguished from those benefits which accrue to persons who reside in a school district). The concept of geographic spillovers translates into economic terms the notion that every citizen has an interest in the quantity and quality of the education which is provided in every school district in the nation. Citizens of our large cities, for example, have a vital interest in the education received by persons in remote rural areas, since many of these persons will migrate to urban core cities in search of employment. Geographic spillovers vary with distance. A citizen of Maine, for example, is likely to be more concerned with the educational services provided in Maine than with those in California, since expenditures in Maine are more likely to affect him directly.

The existence of geographic spillovers provides a strong argument for state and federal participation in the financing of education, since only these larger units of government are in a position to levy taxes over an entire state or the nation. Admittedly, there is no practical way to levy taxes in direct proportion to the benefits each taxpayer obtains from geographic spillovers, but state and federal taxing powers do provide a way of spreading taxes over the total population which benefits from them.

## EDUCATION AS A FORM OF HUMAN CAPITAL

The notion of human capital is relatively new, having come to the forefront only during the past two decades. It is based on the idea that the skills and knowledge possessed by people are, in fact, resources, and that human resources represent a very important part of the capital available to society. Capital, from an economic viewpoint, is characterized by its ability to generate future satisfactions, or future earnings, or both. Education represents a stock of resources just as surely as does land, industrial plants, or oil wells, for education does have the ability to generate future satisfaction and future income. The economic value of education as a form of capital is a function of the income stream it is able to generate. When education is viewed as a form of capital, decisions with respect to education, whether made by a student, by his family, or by public or private agencies, are viewed as investment decisions and are based on the relative rates of return available to alternative investment opportunities.

Education is but one of several means whereby the stock of human capital can be improved. For example, improved health care which reduces the time lost from work as a result of illness or which lengthens the working life of a person clearly contributes to the productivity of human capital. However, it is generally agreed that education is a major determinant of the value of the stock of human capital.

From the human capital approach, education can be viewed as one component in the total stock of capital and decisions with regard to the level of investment in education should follow the same rules which serve to guide other investment decisions, such as plant expansion or replacement of machinery. Thus, additional investment in education would occur only if the rate of return from that investment would equal or exceed the rate of return available from any other alternative investment. The same investment rules also would apply within the entire field of education. That is, the decision to invest in preschool education, or elementary school education, or graduate school education would depend upon the relative rates of return to investment at these educational levels.

### The Present Stock of Educational Capital

As Schultz has noted, "In terms of either years or cost of schooling, the population and labor force of the United States possess more educational capital per person than their counterparts in any other country."[5] As of 1968, 63 percent of the civilian labor force in the United States 18 to 64 years of age had completed at least four years of high school and over 12 percent had completed four or more years of college. Between 1929 and 1957 the annual rate of increase in educational capital in the United States labor force was twice as high as the annual rate of increase of reproducible tangible wealth. There is reason to believe that this rate of increase has continued since 1957. Even though the stock of educational capital has grown at an impressive rate during the past 50 years, one may question whether or not investment in educational capital has been properly directed, whether the existing stock of educational capital has been utilized efficiently, and whether the marginal rate of return has been maintained.

Education, like most forms of capital, pays dividends only when it is used. Unemployment reduces the return on educational capital. Not only is a considerable amount of educational capital idle during times of high unemployment, but also the skills of workers tend to deteriorate when they are idle. This underlines the importance of maintaining a high level of employment, for failure to do so not only substantially reduces the rate of return from investments in educational capital, but causes depreciation of the educational capital itself.

Educational capital is subject to obsolescence. In a rapidly changing, technologically oriented economy, demands for various skills and knowledge will change as new techniques and processes of production are introduced. In general, the more specialized a person's skills, the more rapidly they will become obsolete. It is becoming increasingly clear that education cannot be viewed as a process which terminates upon entry into the work force. Most persons will need to be retrained several times during their productive lives. The rapidity with which highly specialized skills become obsolete suggests that high priority should be given to education directed toward helping people bring to bear knowledge and analytical skills in the solving of problems, as well as toward up-dating existing skills and acquiring new ones.

## The Distribution of Educational Capital

Investment in education is weighted rather heavily in favor of youth because most investment in schooling occurs at a relatively early age. This is likely to reduce the value of the educational capital possessed by older persons. Young people who enter the labor force with a greater stock of educational capital and who possess new skills which are in high demand may tend to make the skills of older workers obsolete. The higher level of educational capital embodied in younger members of the labor force which tends to render obsolete the educational capital of older members poses a difficult trade-off problem which has not been recognized adequately and which has further implications for welfare and retirement policies.

A second problem with regard to the distribution of educational capital lies in the relatively inadequate and/or inferior stock of educational capital acquired by most children from lower socioeconomic classes. This maldistribution of investment in educational capital is associated with inequality in the distribution of personal income. Children from low income families generally acquire less educational capital, and that which they do acquire typically is of lower quality, than that acquired by children from middle and high income families. (Schools serving low income areas tend to spend less per pupil and to be staffed with less experienced teachers than schools serving high income areas.) Public schooling is neither free nor equal and there is good reason, purely on investment grounds, for improving both the quality and quantity of educational capital acquired by children from low income households. The long-run economic benefits which may be derived from improving the educational capital of children from low income families may also include lower expenditures for welfare, public housing, medical care and similar items. These potential savings are, of course, in addition to the direct gains in personal income which could be expected as a result of improved education.

As noted earlier, quality in education traditionally has been defined primarily in terms of inputs using such measures as days of school attendance, expenditure per pupil, and pupil-teacher ratios. There is a pressing need for research which will define quality in terms of the outputs of the schools rather than the inputs to them. Even a cursory examination, however, reveals that great differences in both the quality and the quantity of inputs exist in the nation, within individual states, and even within individual school districts. These differences constitute a major reason for believing that our present investment in educational capital is less than optimal.

### Inefficiency in the Acquisition and Use of Educational Capital

The primary distinction between educational and other human capital, on the one hand, and physical capital, on the other, lies in the fact that educational capital is inseparable from the person in whom it is embodied. Whereas other forms of capital can be sold or mortgaged, educational capital cannot. Educational capital is subject to all of the value systems, social customs, and legal provisions which govern the rights of persons. This situation poses obvious problems with regard to the sources of funds for investment in educational capital. For example, funds which are loaned for the purchase of tangible property can be secured by obtaining a mortgage on such property. However, one who loans money to a student has no security other than the student's promise to repay the loan. This makes it difficult for students to obtain loans from private sources to finance investment in educational capital unless provisions can be made for guaranteeing repayment of the loans.

Inefficiency also results from the constraints which are related to cultural and/or social expectations. For example, if the head of a household moves to another location to take advantage of an employment opportunity, the entire household usually migrates to the new location whether or not employment opportunities for other members of the household are improved.

Another major source of inefficiency in human capital is discrimination in employment on the basis of race, sex, religion, or the like. Discrimination will cause inefficiency in investment in human capital if those who are subject to discrimination have less economic incentive to acquire the amount and quality of schooling than they would have acquired if they were free from discrimination and/or if they have less motivation to attend and perform well in school than those who are free from discrimination. Considerable evidence shows that discrimination against blacks does exist, both in the job market and in education, and that it becomes more significant economically as the educational level of a person increases. If white students can anticipate a 25 percent rate of return on the additional cost involved in obtaining a high school education and black students can expect a rate of return near zero on this additional cost, black students obviously have little economic incentive to complete high school, hence they are likely to drop out of high school at the first opportunity. For example, one study has shown that blacks who have completed five to seven years of schooling receive $790 less annually than do whites with comparable education and that the difference is $1,950 for those completing twelve years of schooling.[6] Such findings indicate the importance of eliminating discrimination based on race, sex, or religion if maximum returns from investment in educational capital are to be obtained.

Tax laws which do not recognize that educational capital depreciates and becomes obsolete constitute yet another source of inefficiency. In the case of physical capital, both depreciation and obsolescence are taken into account in taxation; in the case of educational capital, they are not. Thus, existing tax laws discriminate against investment in educational capital in comparison with investment in physical capital.

Finally, some economists argue that efficiency in the acquisition of educational capital could be improved if investment decisions were made primarily by students and their families rather than by public bodies. It is argued that reliance on consumer sovereignty would bring about greater competition among schools and would consequently result in a more efficient allocation of resources. Whether greater efficiency would be realized depends primarily upon whether or not the prices charged reflect the real cost of producing the educational services and second, upon whether or not there is widespread availability of accurate information concerning the quality of the educational services available for purchase.

## RETURNS TO INVESTMENT IN EDUCATION

Considerable work has been done in recent years concerning the returns to investment in education at various levels. Based upon his own studies and those of other investigators, Schultz has estimated the private rates of return for the United States economy and for investment in education at various levels as follows:[7]

1. For the private domestic economy of the United States, the annual rate of return was estimated to be between 10 and 15 percent before personal taxes.
2. An annual rate of return for investment in elementary education at 35 percent or higher was estimated.
3. An annual rate of return on investment in high school edcation for white males at 25 percent was estimated. Estimated rates of return to members of minority groups ranged down to near zero for southern rural black males.
4. An annual rate of return on investment to improve the quality of elementary and secondary schooling in the neighborhood of 25 percent was estimated.
5. An annual rate of return on investment in college education in the neighborhood of 15 percent (before personal taxes) was estimated for white males. Estimated rates of return ranged downward from 15 percent for rural males, women, and non-whites.
6. An annual rate of return to investment in graduate education in the neighborhood of 15 percent was estimated when stipends awarded graduate students are treated as earnings.

The above estimates are only part of the total picture, for they are only for private rates of return to investment in education. There also are returns to society for its investment in education. Such returns come, for example, from the increases in knowledge and the reduced lag in the application of knowledge which result from education. It is very difficult to estimate the social rates of return to investment in education but from the studies which have been done it appears that the social rates of return are, in general, similar to the private rates.[8]

Viewing the estimated rates of return, one is struck by the apparent under-investment in elementary education. Data are lacking concerning the possible rates of return to investment in early childhood education, but judging by the rates of return to investment in elementary education, the returns to investment an early childhood education would be equally impressive. Examination of the estimates also suggests that there is considerable under-investment in secondary education and underlines the importance of eliminating discrimination in employment based on race or sex if maximum returns to investment in education are to be achieved.

Substantial differences in the level of investment in elementary education exist among the various school districts in the United States. In communities where the level of personal income is high and parents are well educated, such as the typical high income suburb, the investment in elementary education probably is near (or even beyond) optimum at the present time. In many communities, however, there is underinvestment in elementary education and it is due, in large part, to inadequate local tax bases and inadequate state plans for financial support. Underinvestment in elementary education is especially likely to occur in rural communities, particularly those in the South; in communities that have a substantial non-white population; in economically backward areas, such as Appalachia; and in the ghettos of central cities.

Investments aimed at improving the quality of education at the elementary and secondary school levels also pay handsome dividends. Although quality admittedly is still a somewhat nebulous item in education, the evidence on rates of return to investments to improve educational quality lend strong support to the urgency of developing measures of educational output which can serve to guide investment.

## EDUCATION AND ECONOMIC GROWTH

The study of education as a factor in the nation's economic growth is closely related to the study of education as human capital. The desirability of economic growth as a national policy has been affirmed repeatedly by the two major political parties and is generally an important concern of public policy-makers, although concern for protection of the environment for improving the quality of life have also come to the forefront. The role education plays in economic growth has attracted increased attention during recent years. Interest in the relationship between education and economic growth was stimulated by the discovery of a "residual" of unexplained growth which was equal to well over half of the total economic growth during the postwar years in most western countries. Schultz and Dennison were among the first investigators to attempt to quantify the contribution of education to economic growth.[9] Schultz used essentially the same assumptions and the same data employed in the human capital approach. Basically, the effect of education on the growth of the total economy was estimated by summing the effects of education on the income of all individuals. Using data for nine western nations for the period 1950-62, Dennison found that education accounted for between .4 and .5 of a percentage point of the annual growth in national income in the United States, Belgium, and Italy. The proportion of total growth in national income attributable to education depends in part upon the overall rate of growth in the particular nation. In nations which have low growth rates education makes a relatively large contribution, while in nations which have a high rate of growth the contribution of education is less impressive, percentagewise. The difficulty with these procedures is that there is no independent validation of the contribution of education to economic growth, for it is assumed that whatever residual remains after accounting for all other identifiable inputs may be attributed to education.

More recently, econometric studies of the aggregate production function have been used to get at the relationship between education and economic growth. Summing up the results of these studies, Bowman noted that the education embodied in the labor force contributed to economic growth at a statistically significant level whether one looks at the agricultural sector, the manufacturing sector, or the economy as a whole.[10] However, these studies also indicate that education's contribution to economic growth is probably not as great as was indicated by some of the earlier studies.

While there is substantial evidence that education does contribute to economic growth, the precise ways in which this contribution occurs are not known. Existing evidence is based primarily upon wage rates, which are assumed to reflect differences in the quality of labor, which, in turn, are assumed to reflect differences in the stock of educational capital. The studies lend support to the argument that education has contributed to past economic growth, but they do not demonstrate that additional expenditures for schooling would be an efficient way to encourage future economic growth. Such evidence can come only from studies which will reveal in much greater detail the precise ways in which education is related to economic growth.

More needs to be known about the relationship between the distribution of education in the labor force and the rate of economic growth. We need to know the answer to the question of what is the optimal distribution of education (in terms of years of school completed by various segments of the population) if economic growth is taken as the criterion for investment in education? Answers also are needed to such questions as the following:

1. Why have wage ratios remained relatively stable over a long period of time despite the fact that substantial changes have occurred in the proportion of the population at each level of educational attainment?
2. Do current employment practices reflect the level of education required to perform a particular job, i.e., are the educational qualifications demanded of applicants for certain positions essentially unrelated to the actual knowledge and skill required to perform the job satisfactorily?
3. How is education related to innovation and adaptation, i.e., does education serve primarily to increase the pool of talent available to fill critical positions and to increase the adaptability of workers so that improved technology can be diffused more rapidly? If education does indeed create greater adaptability, what type of education, and what level of education, is most effective in improving the adaptability of the labor force?

Our knowledge of the relationship between education and economic growth does not warrant a prediction that merely making additional expenditures for schooling would be the most efficient way to encourage growth. It is true that the available evidence indicates there has been a relatively high rate of return to investment in secondary education. It is almost certain, however, that these rates of return will vary over time, and that they will be influenced by the proportion of the labor force who are high school graduates. Graduating more high school students may contribute substantially to economic growth when there are relatively few high school graduates, but as the proportion of high school graduates increases their relative wage advantage may decline. Also, as a higher percentage of the school age population completes high school there is likely to be negative selection with regard to those who fail to complete high school. When the societal norm is high school graduation, those who fail to complete high school are increasingly likely to be qualitatively inferior, that is, possess less ability or less will to succeed, than those who complete high school. Thus, it would be naive to assume similar rates of return to additional high school graduates if such a situation exists. The available evidence indicates that a fairly large portion of the nation's past economic growth is likely to have been due to increases in the educational capital embodied in the labor force. At the same time, a prediction that further expenditures on schooling in the future would have the same effect on future economic growth is unwarranted. At this point there simply is not enough known about the processes by which education contributes to economic growth to warrant such a prediction.

## EFFICIENCY IN EDUCATION

*Efficiency is measured by the relationship between input and* output in an enterprise. To achieve maximum efficiency a school or school district must obtain the largest possible educational output within the limits of its budget. (From an economic standpoint, efficiency also could be increased by achieving an existing level of output with a lower level of budget.) As noted earlier, little is known about the relationship between the various inputs to the educational enterprise and their effect on educational outputs. In recent years, however, increasing attention has been directed to the task of measuring educational outputs. A number of management tools, for example, systems analysis, operations research and program budgeting, are being sharpened for use in improving the quality of decisions regarding the allocation of resources to the educational enterprise as well as their utilization within the educational enterprise. Several of the emerging management tools have their roots in the discipline of economics and draw heavily upon economic concepts and analyses.

Currently, there is much ado about accountability in education. Accountability has always been stressed in education, but in past years accountability was defined primarily in terms of safeguarding school funds to assure that they were properly expended and that they were not lost or stolen. The recent concern with accountability, however, is more closely related to the economic concept of efficiency. The question being raised today is, "What are we getting in return for the dollars we are spending on education?" Since accountability is primarily an economic concept concerned with input-output relationships, at least as the term is used today, it is appropriate to look to economics for analytical tools which may help answer questions concerning accountability.

## Systems Analysis of Education

The first phase in the application of systems analysis to education is that of identifying the objectives to be served by a program and the priority to be attached to each objective. It is preferable that objectives be stated in operational terms so that progress toward their accomplishment may be more easily measured. Virtually all educational programs have multiple objectives and a thorough analysis requires that all objectives be considered. A number of problems must be dealt with at this stage of the process. *One, for example, is that educational programs serve both* short-run and long-run objectives. This poses the question of which objectives to emphasize as well as the problem of possible conflicts between the achievement of short-run and long-run objectives. Another problem arises in the task of assigning priorities to objectives. In the absence of a market in education, public preferences are difficult to ascertain. The issue is further complicated by the fact that educational programs serve both individual and social objectives; for example, a prime social objective of education is the equalization of opportunity. For individuals, equalization of opportunity may have a low priority relative to more direct benefits, but it may have a very high priority insofar as the social objectives of education are concerned. Thus, the process of establishing priorities involves a balancing of social objectives and individual objectives and inescapably requires that value judgments be made. The analyst should insist that such value judgments be made by others, not by the analyst.

The second phase in the application of systems analysis is that of identifying alternative means for achieving the specified objectives. This phase involves the generation of alternative means of accomplishing objectives as well as the evaluation of such options. The analyst attempts to consider consumer preferences in this aspect of the planning process. For example, an attempt may be made to determine citizen preferences for various educational programs through such devices as citizen participation in program planning, the use of neighborhood schools, and votes cast in school elections. A second method which might be used to assess consumer preferences is the use of fees and user charges. While determining consumer preferences via a price system has some appeal, it has only limited applicability in education because the externalities involved in education and the social objectives of education are not mirrored in the preference patterns of individual consumers. A third possible method of determining consumer preferences would be through the creation of competitive markets. It is argued, for example, that a voucher system would create greater competition in education and permit consumers to select a school in accordance with their preferences. In one sense, the existence of a number of local school districts already provides a competitive market in education, for people can move from one district to another to obtain what they perceive to be a "better" education.

Current educational practice is one fertile source of ideas concerning alternative means of accomplishing specified objectives. The analyst attempts to identify feasible ways of improving output within the context of the present system by using the components presently employed in the system. He may consider, for example, changes in sequence, in level of activity, or in timing. He might ask, "Is it necessary that formal schooling extend over 12 years?", or "Why must baccalaureate degree programs consist of four years of study?", or "Why not have children begin school at age four rather than at age six?"

Another fruitful source of alternatives is knowledge gained from experiments and demonstrations. The analyst may turn to research for evidence concerning alternative ways of accomplishing educational objectives. New ideas or new applications of old ideas are not precluded in the search for alternatives. The objective of the analyst in this phase is to develop a number of program options for consideration by decision makers to insure that choices from among the various options are made consciously rather than programs being continued simply because they exist.

The third phase of the analytical process involves identification of the costs involved in each of the alternative courses of action. Insofar as possible, all cost implications—direct and indirect, capital and operating, short-term and long-term—must be identified. The estimated cost of each program option open to the decision maker is needed. The estimates must include the cost of each program option for a specified period of time, the future cost implications of each program option, and any changes in cost which may be associated with changes in the volume or quality of the services provided under each program option. Attention also must be directed toward any indirect cost items, such as the foregone income of students and the value of the hours of time parents devote to educating their children. The time mothers spend in educational activities with their children does constitute an educational cost, because that time could be devoted to other activities and therefore is not "free." The challenge confronting the analyst at this point is to identify all resources which would be utilized in each program option, to estimate as accurately as possible the cost of such resources, and to project the future cost of each of the program options.

In the fourth and final phase of the process, the analyst attempts to measure the benefits and compare the effectiveness of alternative program options. This task is greatly complicated by the difficulty of separating school-induced gains from gains due to the influence upon the student of other environmental factors (home, community, etc.). Obviously, the measures of benefit (output or achievement) which are chosen must relate directly to the objectives of a program, and ideally they will reflect both long-run and short-run benefits. While the analyst would prefer economic measurements (such as rates of return to investment in various program options), these reflect primarily long-run outcomes and, more importantly, they relate only indirectly to significant objectives which are difficult or impossible to quantify in monetary terms, such as participation in civic activities and use of leisure time.

Achievement tests are the most widely used measures of short term objectives but they fall short of the mark for long-run objectives, primarily because they lack a future time orientation. That is, one must assume that whatever is measured by achievement tests (reading speed and comprehension, verbal ability, mathematical skills, and the like) is directly related to the long-run objectives of an educational program. While some argue that the development of market-oriented organizational arrangements for providing education would enable consumers to apply cost-benefit measures directly, that is a fallacy. In fact, valid objective outcome measures would be extremely important in any market-oriented system in order that consumers could make well-informed decisions when they purchase education for themselves or their children, i.e., when they choose the schools that they or their children will attend.

## Planning-Programming-Budgeting (PPB) System

A PPB system may be viewed as an operational application of systems analysis in education. In general, a PPB system attempts to identify the objectives to be served by educational programs; plan programs which will maximize the accomplishment of these objectives by systematic identification of alternatives and comparison of potential benefits and costs; allocate resources, through the budget process, to the program selected for implementation; and monitor progress toward objectives in the programs that are implemented so that the results of evaluation can be fed back to modify and sharpen the programs.

A major contribution of PPB is the focus upon multi-year program and financial plans so that the future cost implications of each program are clear. School budgeting typically has covered only a one-year or perhaps a two-year time frame; under a PPB system the time frame is extended to cover at least five years. A second major contribution of PPB is its output orientation. Rather than focusing upon the array of program inputs, analytic attention is devoted to the output of the program relative to the objectives of the program. A third contribution of PPB is the focus on program accounting rather than fiscal accounting based upon broad functional categories.

Application of a PPB system approach in education is still in its formative stages but experience to date indicates clearly that adaptations of the PPB approach will be required. The Educational Resources Management System developed by the Association of School Business Officials provides one example of the way in which PPB concepts may be adapted for use in education.

One reason for the need to adapt PPB concepts for use in education is that a PPB system tends to be centralizing in its effect upon educational decisions. It also may easily become a mechanistic system with rather intractable operating rules. Education is, above all, a "people oriented" enterprise. Imposition of a

PPB system of educational decision making will be of little avail without the commitment of those who must make the system work. High sounding goals and clearly defined objectives established by a central body may have little impact or even a negative impact in the classrooms where the learning process occurs. Thus, those who view PPB as a panacea for achieving efficiency in education would be well advised to give serious consideration to the human dimension of the educational enterprise.

## Educational Production Functions

A production function is employed by economists to identify the maximum amount of output that could be produced from a set (or sets) of specified inputs. An educational production function might take the following form: $A=f\ (B,X_1,X_2,\ldots\ldots,X_n)$. In this generalized function, A may represent either a single educational outcome (such as might be measured by an achievement test), or a composite of educational outcomes in which might be combined gains in learning, gains in social and civic participation, and changes in attitudes. It would be preferable to consider A as a measure of the net gain in a specified outcome (or outcomes) achieved within a specified period of time, thus making it analogous to a measure of "value added." Admittedly, there are problems involved in measuring short-run educational gains. Even more serious, however, are the problems of measuring the long-term effects of the educational process—which may be far more important than the short-run effects.

The symbol B in the production function represents the characteristics of the learners who are involved in the educational process. Too frequently students have been regarded as interchangeable units. This is clearly erroneous, for we know that students come to school with different backgrounds, that they vary in ability to acquire knowledge and skill, and that they vary greatly in their attitudes toward learning. Despite our knowledge of individual differences, we have tended to treat students as if they were alike when we know that they are not. It is true that most schools can exercise little control over the nature and quality of their students input. They can, however, provide educational treatments which accommodate the varying characteristics of individual students. An educational production function which does not consider the effect of characteristics of students upon the outcomes of the learning process is simply not adequate.

The variables $X_1$ through $X_n$ in the production function represent all of the other human and material resources employed in the educational process to produce the educational outcomes. These inputs include, for example, teachers, administrators, and other educational personnel; books, laboratory equipment, and other instructional materials; classrooms, shops, and other educational facilities; and all of the other resources that are employed to produce educational outcomes. The qualitative characteristics of the inputs as well as the quantity of inputs should be included in the analysis. Thus, the number of teachers may be one input variable, the years of teaching experience may represent another input variable, and the teachers' verbal or quantitative abilities may represent yet a third input variable.

The objective of analysis based on educational production functions is to allocate the available resources in such a way that the additional contribution to educational output from the last dollar expended on each unit of input is the same. It is at this point that output is maximized for a given level of input. The amount of money available to purchase inputs (the school budget) is assumed to be fixed. The task, then, is to determine how to distribute the budget to the various input factors so as to maximize output for the total funds that are available.

Thomas has employed the production function concept to examine three distinct types of input-output relationships.[11] He distinguished between the three types of educational production functions according to the manner in which inputs and outputs are defined and named them for their principal users. In the administrator's production function, outputs are defined as units of specific service (such as student-years or student-hours); inputs include space, equipment, books, materials, etc.; and analyses are concerned with determining the cost of providing a given unit of service. In the psychologist's production function, outputs are defined in terms of behavioral changes in students (such as additions to knowledge or the acquisition of values); inputs include quantitative and qualitative attributes of the inputs to the educational process (such as the time of teachers and pupils and their personal characteristics as well as space, equipment, books, materials, etc.); and analyses are designed to provide information concerning the relationship between inputs and outputs using multivariate statistical procedures. In the economist's production function, outputs are viewed as the additional earnings which accrue from an increment of schooling and inputs are viewed as the cost of that increment. Analyses are designed to reveal whether or not the earnings which are associated with an additional increment of schooling exceed the cost of the increment.

If schools are to operate so as to maximize the output obtained from a given level of spending then educational managers obviously must be given considerable discretion regarding the inputs which are to be purchased and the way in which they are to be organized in the educational process. Second, reliable measures of output—preferably measures of change during a specified period of time—also are needed. Third, a system of incentives which rewards educational managers who operate efficiently would be very helpful.

Unfortunately, these conditions generally do not exist in education. Educational managers typically have relatively little discretion concerning the utilization of school inputs. They are constrained by state law, by contracts with teachers, by accreditation requirements, and by tradition. Although the educational process abounds with tests, there is little systematic measurement of output and such data as do exist often are not available in useful form. Traditional fiscal accounting systems record expenditures for broad functional categories, rather than on the basis of educational programs. It is very difficult to obtain accurate data concerning the inputs to a given program—to say nothing about similar data concerning the outputs of that program. The reward systems which prevail in education typically do not reward efficiency, nor do they penalize inefficiency. Teachers and administrators who are notably successful in achieving desired educational outcomes are treated about the same as those who are abysmally unsuccessful. While educational production functions do represent a potentially useful analytical tool which can contribute to greater efficiency in education, their full potential cannot be realized unless the sources of inefficiency identified above can be remedied.

### Economies of Scale

In most economic activities the average cost per unit of output declines as the size of the operation increases until, at some point, the unit cost begins to rise again—perhaps because it is increasingly difficult to administer a large organization efficiently, or perhaps because of higher concentrations of pupils who require more expensive programs. The result is a U-shaped curve. In education, the effect of economies of scale is shown by the fact that at very low enrollment levels the cost per pupil tends to be very high, declines quite rapidly as enrollment increases, then begins to rise after a certain size has been reached. Expenditure per pupil, however, is an input measure. The few studies of economies of scale which have used output data do not indicate that larger districts outperform smaller districts in standardized achievement test scores when variations in student input and school expenditure are accounted for. In fact, when output measures are employed there appear to be substantial diseconomies of scale in large urban school districts—suggesting that the cumbersome bureaucratic structure which exists in large urban school districts may lead to substantial inefficiency in operation.

Although relatively little is known about the relationships between various combinations of resources and educational outputs, a positive and significant relationship between teacher salary levels and student achievement has been found when other influences are held constant. Teacher turnover has been found to be negatively related to student achievement. Certain attributes of teachers also have been found to be related to academic achievement. Teachers' verbal ability scores were found to be related to student achievement in several studies. Teacher experience (within certain limits) also has been found to be related to student achievement, although the training of teachers (as reflected in degree level) has not. In the vast majority of studies, little or no relationship has been found between class size and student achievement.

## INSTITUTIONAL ALTERNATIVES FOR EDUCATION

We have made frequent reference in this chapter to the economic principles of efficiency and equity. The proposals for achieving greater efficiency and equity in education which have been advanced by economists fall within two major categories. One category includes those proposals designed to secure greater efficiency within the context of existing organizational arrangements or through modifications of existing organizational arrangements. Economic models for securing greater efficiency in education which were discussed in the preceding section fall within this category. Also falling within this category are proposals for decentralizing decision-making in large urban school systems, and similar proposals aimed at modifying existing organizational arrangements to make them more sensitive and responsive to the needs and demands of the clientele served by the organization.

Proposals which would completely restructure organizational arrangements for education constitute the second major category. Most prominent are the various proposals advocating adoption of some sort of voucher system for financing education. Virtually all economists recognize that the externalities which characterize education require that education be publicly financed or aided. However, public financing of a service does not require that the service be publicly provided. In the area of national defense, for example, the weapons of war typically are purchased by government from firms operating in the private sector. Public school facilities are generally constructed by private contractors. Thus, one who advocates the public financing of education while, at the same time, advocating organizational arrangements which would encourage greater private sector activity in education is not being inconsistent.

## Decentralization

Critics claim that large, highly bureaucratized school districts (for the most part synonymous with large urban school districts) are economically inefficient because they are inflexible, offer no incentive for innovation and experimentation, and are insensitive to the needs and wishes of their clients. One remedy proposed by these critics is decentralization of decision-making to permit decisions regarding who will teach and what will be taught to be made at the local school level. Decentralization of this type would appear to offer students and their families a much greater opportunity to influence the nature and type of the school services they receive, although it would not permit them wide latitude in choosing the school they would attend. Experimentation and innovation in instructional practices and procedures would likely be encouraged under decentralization plans, although whether or not this would improve efficiency is subject to question. A key factor in the success or failure of all decentralization plans is access to educational resources. Any plan which decentralizes decisions but which does not permit all operating units within the system to have equal access to the system's educational resources is meaningless. Furthermore, the level of educational resources available in the total system must be adequate to permit meaningful decisions to be made if decentralization is to achieve greater economic and social efficiency.

### Voucher Systems

In essence, voucher systems provide for the issuance of vouchers to parents of school age children; the vouchers may be redeemed at any approved school, public or private, for a stated amount of money. Voucher proposals envision, either implicitly or explicitly, a restructuring of organizational arrangements for education by providing a wide choice of schools which children may attend. Advocates of vouchers assume that parents will "shop around" and select the school whose program (and charges) best fit the needs of their child. Whether or not the adoption of a voucher system would provide students and their families with greater choice would depend upon such factors as the amount of the voucher, the extent to which the voucher could be supplemented with private funds, the minimum requirements for certification as an approved school, and the extent to which market choices are, in fact, available. While experimentation and innovation might be encouraged under a voucher plan, it is difficult to perceive a marked advantage for a voucher system over other organizational arrangements in this regard. It is difficult to identify any significant educational innovations which have come from private schools other than those associated with institutions of higher learning.

At the heart of all voucher system proposals is an underlying faith that a competitive market system for providing education would be superior to all other organizational arrangements in achieving economic efficiency. Whether or not this faith is justified has not been tested; however, at least five questions should be raised with regard to this issue.

First, the assumption is made that all consumers (students and their families) have thorough knowledge of the market (the quantity and quality of education available at various schools), that their choices will be based primarily upon this knowledge, and that they will not hesitate to seek other suppliers if they are dissatisfied with their initial choice. One can hardly doubt that at the present time most parents are poorly informed with regard to the quantity and quality of education provided in various schools, whether public or private. Observations and interviews indicate that parental judgments with regard to schools tend to be based largely on what they know about the clientele attending a school rather than knowledge of the nature and quality of the educational program provided by the school. Furthermore, once a student enters a school, it is no easy matter to remove him and place him in a different school. As a practical matter, the realistic range of alternatives is likely to be narrow, for most parents will wish to have their children attend school in reasonable proximity to their home. If they have more than one child, it is likely that few parents will elect different schools for each of their children. Thus, the extent to which a voucher system would result in realistic alternatives in the choice of schools which children might attend is certainly open to question.

Second, education is extremely labor-intensive. It is common knowledge that in recent years teachers have become much more militant and that they have obtained statutory authority to bargain collectively concerning their wages, hours, and conditions of employment in many states. The proponents of voucher systems tend to ignore the latent political and economic power which teachers can wield with regard to matters of educational programming. Large, cohesive teachers' organizations could easily overpower any proposed changes if they bargain with a multitude of small, independent private schools. It is unlikely that merely introducing a voucher system to finance education would alter significantly the educational choices available to parents.

Third, education is heavily weighted with externalities. In fact, these externalities provide the major justification for public financing of education. Clearly, the public interest requires that there be substantial regulation of schools to insure that minimum standards are met by those schools which receive public funds. It is quite conceivable that a bureaucracy at least as intransigent as any existing educational bureaucracy could arise to police the operation of a voucher system.

Fourth, it is very likely that the adoption of a voucher plan would contribute to economic and social inefficiency. One of education's major contributions to economic growth is that of breaking down the barriers between class and caste, thus facilitating social mobility. Adoption of a voucher plan undoubtedly would inhibit social mobility by raising economic, religious, and racial barriers. All religious sects would have a strong incentive to establish their own schools lest some other denomination secure control of the bulk of the nation's educational system. A spate of private schools catering to select groups also could be expected to emerge. For example, adoption of a voucher plan for financing elementary and secondary education would encourage the further development of segregated private schools in the South and in northern cities. If the national goal is to foster the development of more segregated white schools and more sectarian parochial schools of all denominations, then voucher systems can do the job. However, if the national goal is to equalize educational opportunities for all citizens and to promote social mobility by breaking down the barriers between caste and class, then voucher systems have little to recommend them.

Fifth, the creation of a large number of competing schools could lead to substantial diseconomies of scale. This would be especially true in the case of secondary schools where the thrust for many years has been to eliminate small, inefficient high schools. The diseconomies of scale which could arise with many small private and public schools in competition for students could easily reduce their output per dollar expended for education rather than producing greater efficiency in the use of the resources allocated to education.

### Performance Contracts

Contracts in which the contractor is paid on the basis of student achievement are a relatively new arrival on the educational scene. School districts have for many years contracted with private sector enterprises for such things as the construction of facilities, the transportation of pupils, and the provision of food services. However, the notion of contracting for the performance of specific instructional activities with the contractor's compensation based on gains in student achievement is quite recent.

Performance contracts may be viewed as a means for modifying existing organizational arrangements, or they may be viewed as a means for implementing entirely new organizational arrangements for education. For example, if the statutes permit it to do so, a school district might contract with a private enterprise to take over the complete operation of a school. It might also negotiate a contract with the teachers and administrators in a given school building under which their compensation would be determined by the extent to which agreed upon objectives were attained.

Private contractors must, of course, make a profit if they are to remain in business. Since they use essentially the same resources that school systems do—teachers, aids, materials, administrators (managers), etc.—private contractors can make a profit only by making more efficient use of these resources. If private contractors can do this, there is no reason why teachers and administrators, given proper incentives, could not also operate more efficiently.

Performance contracts are better suited to the short-run objectives of education that are susceptible to measurement by standardized objective tests. They appear to possess some potential for affording consumers (students and their families) a wider array of choices, although this will depend largely upon how such contracts are used. Performance contracts would certainly provide great incentive for experimentation with innovative instructional practices and procedures.

Performance contracts may have considerable potential for improving efficiency in education, at least in terms of the attainment of short-run objectives. Whether or not performance contracts can be utilized to achieve broad social objectives is less clear. The rapidity with which school districts throughout the country have begun experimenting with performance contracts may be indicative of their potential for improving economic efficiency in education. On the other hand, it may simply be another manifestation of the "bandwagon syndrone" which seems to be so prevalent in American education. In any event, performance contracts cannot be expected to improve equality of educational opportunity unless resources adequate to provide the type of education needed by each child are made available.

FOOTNOTES

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## CHAPTER 3

# *Demographic and Social Factors Affecting the Financing of Education*

Among the factors affecting the cost of education, one of the most fundamental ones is the configuration of the population in its distribution on the earth's surface. A cursory view of the United States emphasizes the vast differences within its national boundaries.

In the sprawling metropolis of Los Angeles with its rivers of traffic, one can find a great variety of conditions. In the social, political and economic clustering of this area as in similar ones throughout America the proliferation of neighborhoods and independent municipalities often contributes to the problems of providing for governmental services.

The western mountain ranges are virtually uninhabited; across Nevada and Arizona, little dots of villages are interspersed between distant cities like Las Vegas and Phoenix. In Colorado, Idaho, Oregon, and Washington, densely populated cities and urban areas are contrasted with sparsely populated agricultural and mountainous areas. This pattern is repeated through Arizona, southern New Mexico, and through the Texas and Oklahoma panhandle into western Kansas, with one noticeable exception. Isolated dwellings of Indians, ranchers, and farmers dot the landscape with frequency that corresponds directly with rainfall and the terrain.

In the plains of Kansas just a few decades ago one room schoolhouses were located on the northeast corner of every fourth section. In the intervening period mechanized farming has reduced the rural manpower needs. The resulting population decline and other social and political changes have contributed to the consolidation of these schools into larger units.

In the fertile flatlands of the Midwest the density of rural population increases somewhat. The small villages are declining, but towns and medium-to-large cities appear with increasing frequency. With Chicago as a center of concentration, an almost unbroken megalopolis extends from Milwaukee to Gary, Indiana, with traces extending to Detroit and Cleveland. In this context state boundaries appear as irrelevant as county and municipal lines.

In contrast to the prairie land of the midwest, Louisiana, Tennessee, and North Carolina show a wide range from large cities along the main rivers and thoroughfares to little knots of villages strung through the mountains by a few ribbon-like roads. On the eastern seacoast another megalopolis extends from Norfolk to Boston.

This brief discussion illustrates the fundamental nature of one demographic characteristic of this nation. Most states have a great range in concentration from a large city to a sparsely settled area. Only a few states depart from this pattern in the distribution of their population.

Citizens often consider their problems and concerns as being unique to a particular setting, but commonalities do emerge when socio-demographic characteristics are studied on a state-by-state basis. Instead of working in isolation, states can benefit from the experiences of others as they develop equitable policies for support of education.

## DISTRIBUTION OF THE POPULATION

### Urban Concentration

The concentration of population in urban areas is perhaps the most significant ecological fact of our time. In 1970 about 35 percent of the people lived in cities above 50,000 population.[1] An additional 38 percent were in cities of 2,500 to 50,000. When the standard metropolitan statistical areas were considered, about 64 percent of the total population was included. Figures for these three groups in 1950 were respectively, 35 percent, 29 percent, and 59 percent.

### Sparse Areas

The 1970 census shows 27 percent of the population residing in the open country and in villages of 2,500 or less population. The corresponding figure for 1950 was 36 percent, and in 1940 it was 44 percent. The population in these areas has remained at about 54 million persons. Thus, the net effect of migration has been a loss of the increase arising from birth rates. These figures do not reveal actual decline in numbers in the open country.

### Consequences

Shifts in population have had profound consequences on education, styles of life, transportation, governmental services, and the economic structure of the sparse areas. Many aspects of the culture have changed markedly in the last few decades.

The population shift from rural to urban areas has done more than reduce the proportion of the total population remaining in the rural areas. Many school districts with small enrollments and limited programs now face almost insurmountable difficulties as they attempt to offer improved educational opportunities for a declining population. Other governmental services are also inadequate, but per capita costs continue to rise. Leaders in many of these sparse areas also have been slow to recognize the need for reorganization of local government units.

Within the present governmental structure at least 80 percent of the existing 18,000 school districts do not have sufficient enrollments to provide minimally adequate programs without excessive costs. However, this generalization cannot be applied uniformly to each state, for some have a sound district organization pattern.

The process of school district organization has been retarded by the lack of development and funding for state finance formulas with correction factors for transportation, small schools, and special programs to overcome the handicaps arising from sparsity of population.

The presence or absence of educational programs and services in sparsely populated areas will have different fiscal implications. For example, in an area with declining population the gross per capita cost for education will increase less sharply in communities with few special programs and services than in communities with broad programs. Interest in the addition of new programs and services in recent decades has been slowed by the heavy impact of inflation. Because of the necessity to make priority-oriented decisions, new programs have lost in the competition for fiscal support.

Urban areas also have unique characteristics which affect education. The population in cities over 100,000 has increased from 44 million in 1950 to 55 million in 1970, while the percentages of the total in the nation in these cities declined from 29 percent in 1950 to 27 percent in 1970.

Cultural factors have a great impact on education. Mobility of population is high, causing many schools to have a high pupil turnover during the year. The rate of pupil influx in recent decades has increased faster than available resources for physical facilities. Rural areas continue to provide a stream of disadvantaged children to the urban areas. This concentration of diverse ethnic groups has contributed to social and economic adjustment problems. Urban schools find themselves with a high proportion of children who have learning disabilities which require extra services and instructional resources.

The various combinations of all these forces contribute to the rising per capita cost of education in the urban areas. In recent years the impact of urban forces has been expressed by many spokesmen as a density phenomenon. A few states have introduced density factors in the state aid formulas. However, factors for density and sparsity are only proxy measures that are justified until direct measures based on diagnosis of pupil needs for compensatory or special educational services can be developed.

## Proximate Urban and Nonurban Areas

Various propositions have been advanced from time to time about ways that proximate urban and nonurban areas might cooperate for mutual educational advantages. The two most dominant procedures that have been tried are: (1) shared programs and services and (2) amalgamation of school districts.

The former arrangement is exemplified by regional vocational centers, regional centers for special education, and intermediate districts. Experimental programs for computerized instruction, research services, and financial pupil accounting services are others.

Amalgamation has occurred in a few urban areas where school districts for metropolitan areas have been created. In the sparse areas there has been a long-term trend of combining villages and rural areas that formerly had separate school districts.

The consolidation of small schools in villages with the surrounding rural area increases the scale of operation with economies in the distribution of resources. Greater efficiency can be attained by a reduction in the duplication in course offerings and supportive services of professional and auxiliary staff. Class sizes may be increased without exceeding effective limits.

There are other variables among small districts which arise from social attributes of the people and are difficult to accommodate in state aid formulas. Through consolidation of several small districts into larger units, differences in socio-demographic indices among school districts are reduced. State aid programs can be addressed to correcting the problems, but intra-district variations remain. Even if state aid measures were made applicable to schools instead of districts the corrections for these factors would still be made more equitably in states with an adequate district organization pattern.

Creation of metropolitan governmental units through the merging of either urban and rural or inner city with suburban areas raises issues of reorganizing various governmental units, not only for education but also for other governmental services. With fewer districts various programs and services may be developed to the point of simplifying the problem of measuring need among districts in the state funding plan. Within the large districts the equitable intra-district allocation of resources among schools would be much more complex because of inter-school sharing of personnel and facilities.

## CHARACTERISTICS OF THE POPULATION

Various population characteristics affect the financing of education. As the age distribution varies, need and demand for educational programs and services also differ.

## Birth Rates and Age Distributions

Trends of birth rates have a direct impact on finance. Estimates for the decade of the 70's[2] suggest a slight decline, perhaps under five percent of the 5-17 age group from 1970. By 1980 the low point of the distribution will be among the 12- and 13-year-old youth. By that time, barring unforeseen changes in birth rates, the population under six years of age will be 18 to 39 percent above the size in 1970.

These trends will have various effects, particularly in combination with patterns of migration. In some communities schools will be closed because of population decline, while in others the need for additional facilities will be great because of population growth.

In the past birth rates have been higher among the low income families than among the middle and high income groups. Future trends are uncertain, but high birth rates in one or another economic sector do have a relationship to the type and quantity of needed educational services and programs.

## Socio-Economic Composition

Changes in the socio-economic composition of the American population may have a profound impact on the need for various educational programs, services, and financing in the years ahead.

First is the increasing number of families dependent on public assistance. A high proportion of children are educationally handicapped because of cultural impoverishment. Costs of public assistance have reached a magnitude which offers competition for scarce resources that might be spent on education. Many of these children enter school with handicaps that call for remedial or supplementary services at extra expense. Requests for funds to provide these services are often in competition with additional requests for welfare or public assistance.

Second is the large group of youth of all ages who, for a variety of reasons, have serious emotional and learning difficulties. About three percent of the youth have severe mental and physical handicaps. A small fraction, about 0.2 to 0.3 percent, must be institutionalized for extended periods because of severe social and emotional problems. About 10 to 15 percent of youth have a wide range of learning difficulties that require extra resources as compared with the remainder of the population.

Third is the substantial proportion of the normal working population in the 25-64 age group that undergoes occupational readjustment resulting primarily from technological changes. Many of these adults are in need of part-time continuing education on a systematic basis for extended periods of time. Some of them are able to perform successfully in programs offered by junior colleges. Others either do not have access to the junior colleges or they need programs which could be offered in the high schools with appropriate resources.

Fourth is the increasing proportion of the population over age 65. The knowledge of medical science has increased the average longevity of life, but the culture has not provided an opportunity for a corresponding increase in the capacity for extended productivity. This group is creating an increasing demand for various adult education programs as well as for public services in competition with education.

The first three groups have special relevance for this project. Their effect is to increase the overall cost of education. Furthermore, what is even more significant is the uneven distribution of pupils with learning difficulties among local school districts. Some districts have high concentrations of pupils with these difficulties. Other districts have relatively few. Serious inequities occur in state finance plans when funds are distributed on an average per pupil basis without adequate correction factors to compensate for the extra services to deal with the wide assortment of learning and developmental difficulties of some pupils.

### Social Objectives and Attitudes

Communities vary in their patterns of ethnic, religious, and economic backgrounds. They vary in educational preferences. Some have predominant attitudes of "production" orientation. They emphasize achievement for upward social and economic mobility, or have a high value for vocational training. Others have a "consumer" emphasis, i.e., interest in the non-economic qualities of life.

There are constant demands from all types of communities for specific changes such as making the curriculum more relevant to the needs of pupils, adding new services, extending formal schooling to children of younger age, increasing vocational programs, and expanding adult education programs. When these demands are defined clearly and put into perspective, they indicate an expansion in scope and comprehensiveness and increased fiscal requirements for education.

## Social Dynamics

The mobility of the population adds to the impact of social heterogeneity on educational finance. The movement of families (and children) from one neighborhood to another in the large cities, as well as between various geographic areas, places a challenge on local schools to make instructional adjustments for students. Substantial numbers of pupils attend from two to four different schools each year, with some slippage each time in individual progress. Many schools in the inner cities have an annual turnover of individuals equal to more than twice the number of enrollees during the first week of school. This dynamic characteristic of the school population creates the need for a different type of educational program to help maintain instructional efficiency as compared with more stable populations.

The composition of the mobile school population has a noticeable impact on school systems. Children with bilingual backgrounds—Mexican-American, Indian-American, Puerto Rican, and others—may constitute a sizeable neighborhood in a large city, and a large proportion of a school's enrollment. In a medium-to-small community there may be only a dozen or so pupils of different backgrounds, and the school's response must be more individualized.

The flow of migration in the 70's will not be characterized as a farm-to-city movement. The crest of the farm revolution has passed. The next migration will be to metropolitan areas and will include movement of large numbers who went from the farm to small cities and villages where industrial and service occupations failed to provide sufficient employment. In this industrial-technological society, movements of larger numbers of families at all economic levels may be anticipated.

Many suburbs are already having a change in the flow of their migrant school population, with increasing numbers of low income families. The distribution of families is changing from skewness of middle-to-high income toward a pattern with predominant middle income, flanked by high and low incomes.

Changes in the composition of the migrant school population will contribute to the complexities of financing education in at least two major ways that are observed at present: (1) obscure the need for additional funds to provide expanded educational programs associated with these pupils and (2) necessitate greater adaptability of schools to cope with a wider spectrum of educational needs in the school population.

### Economic Dynamics

Changes in fiscal support for education seem inevitable if this nation attains the dominant educational objective of equality of educational opportunity for every individual to develop to the limits of his capability and motivation. Two fundamental changes are crucial: (1) alterations in the changing governmental and economic structure on which taxation depends, and (2) the further consolidation of inefficient school districts which have inadequate population to operate comprehensive programs effectively.

Some grave economic issues arise in implementing this goal of equal educational opportunity. Aside from issues on changes in tax systems, there are some specific ones on distribution of funds. First, the variations in the educational needs of pupils must be recognized in determining financial requirements. Second, varying educational program requirements will result in variations in expenditure levels among pupils and school districts. Third, philosophical differences exist relative to desired levels of taxation equity for individuals and governmental units.

To be more specific, assume that pupil needs among communities can be defined reasonably well and then the resources of personnel and material estimated. Since salaries of all the staff, professional and auxiliary, constitute about 75 to 80 percent of the operating budget, the policies governing the salary structures will affect the expenditure level among districts. Should salaries be equal throughout a state, or the nation, for comparable quality of service? Should cost of living corrections be introduced to offset expenses associated with variations in cost of living?

If the above illustrations of variations in educational program requirements among pupils and school districts are recognized, varying levels of fiscal support are an inevitable outcome. If the concept is extended further to recognize that the expenditures required to provide identical educational programs and services will vary among school districts, fiscal allocation systems then must include additional weightings which recognize these economic factors. Adequate funding will require an extension of the equalization principle considerably beyond the existing patterns.

Another example of the manner in which societal and cultural changes have an impact upon educational programs is found in the increasing limitations on the development of work-study programs or real-life experiences for youth. The economy is becoming increasingly closed to youth for on-the-job clinical experience that can be related to their educational development. Available opportunities will not be accessible to the large numbers of students seeking the experience.

Can schools provide experiences on a laboratory scale to bridge this gap? One option may be for the public school system to install the concept of a mini-scale laboratory for on-the-job training of generalizable skills, such as an auto mechanics shop, sales training through distributive education, construction of a home in the building trades program, a science laboratory designed to prepare medical laboratory technicians, and computer laboratory to train computer technologists.

Public schools are well-suited to teach the general education knowledge and skills needed in business and industry; and they *can* do so at reasonable cost, leaving on-the-job training that consists largely of specific skills to be provided by particular business or industrial organizations. However, societal needs related to manpower retraining and service or small employer occupations may not be met adequately through this latter course of action.

Some critics of the public schools contend that the system is not responding with sufficient clarity and speed and also is not undergoing the changes in programmatic emphasis necessary to meet the requirements of the times. Other spokesmen claim that the public schools should reflect societal values and goals and that they depend upon it for sufficient resources and moral support. The challenge of adaptation involves both a restatement of societal goals for public education and an allocation of sufficient resources to achieve those goals.

This project presents much evidence related to the necessity to reexamine goals and programs in the public school system of this nation. Many elements of this reexamination are underway, some of which will suggest savings but others point to increases in the cost of education.

Various institutions are undergoing significant changes in the American culture. The extended family unit no longer provides the security of a less mobile society; families in which both parents hold full time jobs do not provide the same type of relationship found in a rural agrarian culture. The pseudo-apprentice pattern of the boy following in the occupation of his father is becoming much less prevalent as more and more jobs become obsolete. Each of these and other changes result in increasing expectations from educational institutions—from pre-school programs to post-secondary vocational training.

Advances in technology and increases in the rate of expansion of knowledge place additional demands on educational institutions. The task of maintaining contact with current developments offers a formidable challenge for professional educators charged with the responsibility for providing relevant educational experiences.

How can the interest of the professional educator be balanced with the public interest as the nation makes decisions about public education and determines its educational goals? Will the profession have the opportunity and the responsibility for providing leadership in this endeavor? What role will the profession have in determining the nature of the educational environment in which the profession will be held accountable for educational outcomes? How will decisions be made concerning organization of programs and staffs, the instructional process, and inputs for capital facilities and supplies and equipment? Additional interaction is necessary before agreement is reached on the appropriate lay and professional balance in educational decision making.

## SUMMARY

Educational expenditures are determined by a number of concerted forces, some of which can be sorted out and measured while others are subtle and elusive. The list includes: sparse population, high density, high concentrations of pupils with learning difficulties that require extra-cost programs and services, breadth of educational offerings, living costs, prevailing living standards among communities, aspirations of citizens for the development of their children, and the nature of cooperation between the community and the schools. These forces operate within the parameters of state tax provisions for education, methods of distributing state and federal funds to local districts, patterns of organization for school districts, and the attitudes of citizens.

In some of the sparsely settled areas of the nation, there are so few students in a school that a typical program requires twice the per pupil amount of staff, materials, and buildings as compared with a school of normal size in populous areas.

Many high density urban areas provide the other extreme where factors other than mere numbers of pupils enter the picture. The socioeconomic composition of the population contributes to wide differences in social characteristics and educational needs which require additional inputs to meet educational needs. The big cities are the most conspicuous examples of this social imbalance which results in an overload on the school system to compensate for an abnormal amount of educational disadvantaged in the school population.[3] This imbalance has become associated with high density, when in fact the problem is sociological in character.

In other areas some type of school district consolidation or reorganization may be desirable, but adjoining communities with differing religious, ethnic, and economic characteristics may be antagonistic and uncooperative with each other. These differences in attitudes often overshadow the geographic limitations that stand in the way of providing optimal educational opportunities. Thus, part of the excess cost of operating many small schools can be attributed to social attitudes and not to the degree of population sparsity.

In many communities the political dynamics of existing governmental units are polarized between rural and urban areas. This condition has thwarted the consolidation of rural and small urban school districts into unified systems in nearly half of the states in this nation. Thus, the advantages accruing through proximity to each other often have been lost in jealousies and misunderstandings.

There are other dynamic characteristics of our society that have a great impact on educational finance. The impact of migration into the inner cities has been the most critical one. Migration into other areas has had pronounced impact in some instances.

The impact of out-migration to the suburbs around big cities has not been fully assessed for the effect on educational finance.

In the early stages of development these communities were able to devote a high proportion of their tax revenue to public schools. As they have matured and become saturated other costs of government have increased proportionately. Today, many of these communities face a serious financial crisis.

The first consideration, therefore, in taking stock of the financing of public education in America, is the varied panorama of social and demographic characteristics: the distribution of people across a vast land, the great range in the nature of school districts, the variety in political subdivisions for governmental services related to education, the mobility of population, and the great variety of ethnic backgrounds. Some of these differences create problems for solution. Others unavoidably cause extra costs which must be understood. The first challenge is to develop higher levels of tolerance for and to capitalize upon the great potential in the cultural diversity of the people in the United States—their thoughts, attitudes, aspirations, values, and capacity to achieve the common good, and the second, and greater challenge, is for the American educational system to provide an educational program for all sectors of the population and also to maintain its historical capacity to foster social and economic mobility for the populace.

## FOOTNOTES

1. U. S. Department of Commerce, Bureau of Census. *Advance Report*, (PC-VI-1-50). Statistical Abstract of the United States, 1970.

2. U. S. Bureau of the Census, Current Population Reports, Series P-25, No. 375. "Revised Projections of the Population of States: 1970-1985." Washington D. C.: Government Printing Office. October 3, 1967. Table 5, Series I-B, pp. 26-33; Series I-D, pp. 42-49.

3. See Chapter 6 for discussion of measurement of program cost differentials.

## CHAPTER 4

# *Variations in Ability and Effort to Support Education*

The fact that variations in ability and effort to support education exist among states, regions, and school districts in the United States has been demonstrated so frequently that it hardly needs repeating. However, despite years of effort to develop and put into practice systems of financing education which will reduce the effect of such variations, they remain with us today. Why are such variations a matter of concern? The fact is that equality of educational opportunity is fundamentally a matter of equality of access to financial resources. Wide variations in ability and effort to support education are a major obstacle to the attainment of substantial equality of educational opportunity in the United States. Thus, one important criterion against which school finance programs must be measured is the extent to which variations in the ability of school districts and states to raise revenue for the support of education are permitted to control the level of financial resources available to educate children in the schools.

The terms ability and fiscal capacity will be used interchangeably in this chapter. For our purposes, fiscal capacity is a measure of the fiscal bases which a taxing jurisdiction is taxing, or could tax, to raise revenue for public purposes. Thus, when we refer to the fiscal capacity of a school district or any other unit of government, we are referring to the tax base (or bases) against which that unit of government may levy taxes. Tax effort refers to the extent to which a taxing jurisdiction—for example, a state or a school district—is using its capacity to raise revenue by taxation. Obviously, the amount of revenue which can be raised by a unit of government will depend upon both the size of its tax base and the tax rate which it levies. A district with a very limited tax base can raise relatively little revenue even at confiscatory tax rates, while a district with a large tax base can raise substantial amounts of revenues by levying a very modest tax rate.

## TAX SOURCES FOR EDUCATION

Before examining the extent to which variations in fiscal capacity and tax effort exist among states and school districts, it will be useful to consider some of the taxes which might be used to obtain revenue for education, particularly with regard to several generally accepted criteria which may be used to evaluate various taxes and tax structures.

It is generally agreed that a tax should not bring about economic distortions by causing people to alter their economic behavior. For example, a tax should not reduce the output of some goods or services relative to others; it should not affect decisions regarding the location of industrial plants, shopping centers or other economic activities; it should not reduce the efficiency of the production and distribution of goods and services; and it should not reduce the willingness of persons to work.

A second major criterion is that a tax should be equitable. This criterion indicates, for example, that persons who are in the same economic circumstances should be treated equally; that taxes should be distributed on the basis of the taxpayer's ability to pay; and that the overall tax structure should not be regressive relative to the income of taxpayers (i.e., should not take a greater percentage of the income of low income taxpayers than of high income taxpayers).

A third major criterion is that a tax should be collected easily and effectively. This criterion suggests that a tax should be difficult to evade or avoid, that collection procedures should be simple, and that the cost of collecting the tax should be minimal.

A fourth criterion which has gained increasing acceptance in recent years is that the revenue obtained from the tax structure should rise at least in proportion to income. Governmental expenditures tend to rise at least as rapidly as income and unless the revenue obtained from the tax structure increases at the same rate, either frequent adjustments in tax rates or a search for new tax bases are required.

### The Property Tax

The property tax traditionally has provided the bulk of the revenue received by local governments in the United States. During fiscal year 1969 local governments in the United States received about 86 percent of their tax revenue from the property tax and school districts received about 98 percent of their tax revenue from this source. During the past decade property tax yields expressed as a percentage of gross national product have remained relatively constant at about 3.4 percent, and current percentages are about the same as they were throughout the period 1870 through 1914.

The property tax is particularly well suited for use by units of local government and frequently units of local government are given no other taxing powers. A major advantage of the tax is that property is not easily moved to escape taxation (in contrast to income, for example). Furthermore, some of the expenditures made by units of local government (such as those for police and fire protection) directly benefit property owners.

On the other side of the ledger, however, the property tax does have some serious limitations. It is likely to cause economic distortions and inefficiency in that it constitutes a heavy tax on housing; it tends to discourage rehabilitation of deteriorating property (improving property generally increases the tax on the property); it is likely to affect decisions by business and industry with regard to location (the existence of favorable property tax rates may override all other factors when determining a business location); and it does not bear equally on all businesses (favoring those that have a low ratio of property to sales).

The property tax also fares rather poorly on the equity criterion. Because of the inequities which occur in the assessment of property there frequently is unequal treatment of equals. Another serious shortcoming is that property ownership is not closely correlated with either income or net wealth. In other words, in an urban industrialized society the ownership of property is a rather poor measure of ability to pay taxes. This is seen most clearly, for example, in the case of older persons who own a home but have little current income which can be used to pay the property tax. In most cases a tax on business property is shifted forward to the consumer, i.e., added to the price of the item, although the ease with which the tax may be shifted varies from one business to another. The property tax frequently is criticized as being regressive in relation to income. The evidence on this question is not at all clear, although there is some evidence that persons in the lowest income groups pay a much higher percentage of their income in property taxes than do persons in the highest income groups.[1]

The property tax does not rate well on the criterion of revenue elasticity. Netzer concluded that when national income increases by 1 per cent, property tax revenues will increase by approximately .8 per cent.[2] One reason for this lag is the fact that the rate of increase in the property tax base depends upon action by assessors. Consequently, the property tax base does not increase automatically as business activity expands. Also, the rather low correlation which exists between property and income indicates that the two are not likely to increase at the same rate.

The property tax undoubtedly could be improved substantially by the adoption of more accurate and more uniform assessment practices. Other recommendations for changes aimed at removing some of its deficiencies include exemption of low income groups from the property tax, a freeze in tax rates to encourage new construction and renovation of existing property, and exemption of owner-occupied homes from the property tax. Although the property tax undoubtedly could be improved, increased use of this tax base is difficult to justify. Its inherent disadvantages cannot be removed completely. Furthermore, the property tax is already used so heavily by units of local government that it does not appear to offer much potential for significant increases in local government revenue.

### The Sales Tax

The sales tax is a major source of revenue at the state level. Although in most states school districts are not authorized to levy a sales tax, the sales tax nevertheless is a major source of revenue for education because state grants-in-aid to local school districts are financed in part from revenue which the state derives from sales taxes.

In 1970, 45 states containing 98 per cent of the population of the United States levied some type of sales tax. During 1969, sales tax collections by the states totaled \$12.3 billion, which represented about 30 per cent of all state tax revenue. Sales tax rates in 1970 ranged from 2 per cent to 6 per cent with the median state sales tax rate being 3 per cent.

The extent to which the sales tax meets the equity criterion depends primarily upon how the tax base is defined. A sales tax on all goods tends to be regressive relative to income. A good bit of the regressivity can be removed, however, by either exempting food from the base of the sales tax or by allowing a credit against income tax liability for the sales tax paid on minimum necessary purchases.

With regard to economic distortions, sales taxes may affect decisions concerning the location of shopping centers and other large retail developments. This is particularly true at the borders of a state if one state levies a sales tax and a neighboring state does not, and in metropolitan areas if local municipalities levy sales taxes at varying rates. Economic distortions also may occur if sales taxes are levied upon goods used in production. Another type of economic distortion may arise if some goods are exempted from the tax, since consumers then have an incentive to increase their consumption of exempt goods in comparison with those which are taxed.

Administration of a sales tax is relatively simple, at least at the state level, for the tax generally is collected by the retailer and remitted to the governmental unit levying the tax. Interstate sales do pose some problems, for a state cannot levy a tax on sales for delivery outside the state and often has difficulty collecting a tax on purchases made by its residents in another state. Problems of administration and compliance are multiplied if there are many exemptions to the tax base since record keeping is made more complicated and audit is made more difficult.

The revenue elasticity of the sales tax will depend upon how the tax base is defined and upon the items which are exempted from the tax. However, the revenue derived from a sales tax tends to increase at about the same rate as income increases.[3]

## Personal Income Tax

The personal income tax is the largest single source of revenue of the federal government and also is an important source of revenue for the states. Forty-one states made use of some type of personal income tax in 1970, although it should be noted that state income taxes varied widely both in definition of the tax base and in rate structure. Local income taxes are not widely used, although they do represent a significant source of revenue for units of local government in a few states.[4]

A personal income tax which treats all income uniformly should cause the least economic distortion of any tax. In terms of equity, the personal income tax has the advantage of being directly related to the most generally accepted measure of tax paying capacity, i.e., the income of the taxpayer. Furthermore, the tax can be adjusted to take into account circumstances which affect tax paying capacity. For example, exemptions can be provided for dependents and certain necessary expenditures, such as those for medical care and for payment of state and local taxes, which can be deducted from gross income to arrive at taxable income.

Administration of the personal income tax, although potentially rather complicated, has been greatly aided by adoption of such practices as withholding and payroll deductions. The use of computers and the exchange of information by the federal and state governments has greatly improved administration of the tax as well as making tax evasion more difficult.

The personal income tax ranks the highest of all taxes on the criterion of revenue elasticity, particularly if the rates are progressive, i.e., increase as the individual's personal income increases. When a progressive rate structure is employed the revenue obtained from the income tax increases more rapidly than does personal income, thus tending to keep pace with the growing demand for public services. On the other hand, revenue from the personal income tax will tend to decline at a more rapid rate than personal income declines in periods of economic recession if the rate structure is progressive.

## Corporate Income Taxes

In addition to the corporate income tax levied by the federal government, 43 states levied a tax on the income of corporations in 1970. The nature of the corporate income tax varies quite widely among states, as do the tax rates levied on corporate income. During fiscal year 1969, state taxes on corporate income yielded $3.18 billion, which was 7.6 per cent of all state tax collections during that year.

Taxes on corporate income are not likely to cause serious economic distortions if they are relatively uniform from state to state, although a potential for economic distortion does exist. It is often asserted that if a state deviates too far above its neighbors in taxing corporate income it will be at a disadvantage in the competition to attract and/or retain industries. However, the evidence with regard to this claim is far from clear.

Taxes on corporate income generally comply reasonably well with the criterion of equity. A moderately progressive rate structure is found in some states, although proportional tax rates on corporate income are more common at the state level.

In terms of difficulty of administration and compliance, corporate income taxes are comparable to personal income taxes. Revenue elasticity from the corporate income tax is somewhat less than from the personal income tax, but is higher than the revenue elasticity characteristic of nearly all other levies.

### Other Taxes

Excise taxes, particularly those levied on motor fuel, liquor, and tobacco products, produce a substantial amount of revenue at the state level—$8.9 billion in fiscal year 1969.[5] Excise taxes are also levied by the federal government but their use by units of local government is quite limited. Excise taxes already are used heavily and do not have the potential to produce significantly greater amounts of revenue in the future.

Estate and inheritance taxes are levied at the state level but they do not produce a great deal of revenue and their potential is rather limited. Severance taxes on natural resources such as petroleum and minerals are levied by some states but generally do not represent a major source of governmental revenue.

There are no major unused taxes. It is true that not all states levy each of the major taxes at the present time. Some states, for example, still do not levy a tax on personal or corporate income and a few states do not tax sales. However, as revenue demands have increased in recent years the states have been forced to search continually for new sources of revenue and it is likely that all states will levy each of the major taxes in the foreseeable future. Thus, it seems more productive to concentrate attention on improving the productivity of existing tax structures rather than searching for new sources of tax revenue.

## VARIATIONS AMONG THE STATES IN FISCAL CAPACITY AND EFFORT

The concept that education is a state function has been so firmly established by a long line of court decisions that it is beyond argument. Since education is a state function, responsibility for providing financial support for the operation of public schools rests with the state. A local school district has no inherent power to levy taxes; its power to levy a tax must be expressly conferred upon it by the state. Consequently, we shall first examine variations among the state in fiscal capacity and effort, particularly as such variations affect the financing of education.

There are two general approaches which have been employed in measuring fiscal capacity. The first approach utilizes economic indicators, primarily measures of income, and compares the several states on the basis of such economic indicators. The second approach to measuring fiscal capacity evaluates the tax bases available within a state, estimates the amount of revenue these bases would produce if they were subjected to various rates of taxation, and compares the several states on the basis of these data.

### Fiscal Capacity of States Based on Economic Indicators

Personal income expressed on either a per capita or a per household basis is the measure most commonly used for determining the relative ability of the states to raise revenue to finance state and local governmental activities. Total personal income per capita is not the most satisfactory basis for comparisons because it ignores the fact that people must purchase food, clothing, and shelter in order to survive, and that they must pay federal income taxes. A study conducted for the National Educational Finance Project developed estimates of personal income per capita in the 50 states by deducting from total personal income (1) an allowance of $750 per person to cover basic expenditures for food, clothing, and shelter and (2) federal personal income tax paid.[6] The estimates of net personal income per capita and of net personal income as a percentage of personal income per capita for each of the 50 states are shown in Table 4-1.

For the United States, net personal income per capita was estimated to be 69.55 per cent of personal income per capita. The lowest percentage was found for Mississippi, where net personal income was estimated to be only 58.94 per cent of personal income per capita. The highest percentage was for Alaska, where net personal income was estimated to be 74.68 per cent of personal income per capita. Net personal income ranged from a low of $1,292 per capita in Mississippi to a high of $3,369 per capita in Alaska.

Some have proposed that measures related more directly to the demand for education should be used to assess the capacity of states and units of local government to finance education. Such measures as personal income per person age 5-17 or personal income per child in average daily attendance have been suggested. In Table 4-2 are shown estimates of personal income and the rankings of the fifty states on these two measures. (Estimates of personal income per capita are shown in Table 4-1.)

Income per school age child does more accurately reflect the educational "load" of the area in question. It also adjusts for differences in the age distribution of the population of a state. States with a large proportion of persons in the upper age brackets may rank considerably higher when their fiscal capacity is measured on the basis of personal income per school age child. Florida, for example, ranked 28 on the basis of personal income per capita but on the basis of personal income per school age child Florida ranked 15. In Alaska, on the other hand, where the school age population is a much larger percentage of the total population, the state ranked 2 on per capita income but 19 on income per school age child. A comparison of the data contained in Table 4-1 and Table 4-2 indicates that 13 states changed in rank by five or more places when income per school age child was used as the basis for the ranking. Six states (Alaska, Arizona, Minnesota, New Mexico, Utah and Wisconsin) dropped five or more places; seven states (Florida, Maine, Missouri, Oregon, Pennsylvania, Rhode Island and Tennessee) increased in rank by five or more places.

### TABLE 4-1
### NET PERSONAL INCOME IN 1969 AFTER DEDUCTION OF AN ALLOWANCE FOR BASIC EXPENDITURES ($750/CAPITA) AND FEDERAL INCOME TAX PAID[a]

| *State* | *Gross Personal Income Per Capita (Dollars)* | *Rank* | *Net Personal Income Per Capita (Dollars)* | *Rank* | *Net Personal Income Per Capita as a Percentage of Personal Income Per Capita* | *Rank* |
|---|---|---|---|---|---|---|
| Alabama | $2,566 | 48 | $1,605 | 48 | 62.55 | 48 |
| Alaska | 4,511 | 2 | 3,369 | 1 | 74.68 | 1 |
| Arizona | 3,336 | 29 | 2,291 | 29 | 67.68 | 27 |
| Arkansas | 2,520 | 49 | 1,582 | 49 | 62.78 | 47 |
| California | 4,272 | 7 | 3,096 | 5 | 72.47 | 2 |
| Colorado | 3,568 | 21 | 2,492 | 22 | 69.84 | 20 |
| Connecticut | 4,537 | 1 | 3,209 | 2 | 70.73 | 8 |
| Delaware | 4,013 | 10 | 2,781 | 10 | 69.30 | 24 |
| Florida | 3,427 | 28 | 2,338 | 28 | 68.22 | 30 |
| Georgia | 3,040 | 36 | 2,031 | 37 | 66.81 | 38 |
| Hawaii | 3,809 | 13 | 2,689 | 12 | 70.60 | 9 |
| Idaho | 2,857 | 42 | 1,875 | 42 | 65.63 | 43 |
| Illinois | 4,310 | 5 | 3,077 | 6 | 71.39 | 5 |
| Indiana | 3,691 | 16 | 2,579 | 17 | 69.87 | 19 |
| Iowa | 3,517 | 24 | 2,477 | 23 | 70.43 | 11 |
| Kansas | 3,532 | 23 | 2,493 | 21 | 70.58 | 10 |
| Kentucky | 2,850 | 43 | 1,871 | 43 | 65.65 | 42 |
| Louisiana | 2,781 | 45 | 1,784 | 45 | 64.15 | 45 |
| Maine | 3,039 | 37 | 2,029 | 38 | 66.77 | 39 |
| Maryland | 4,095 | 9 | 2,864 | 9 | 69.94 | 16 |
| Massachusetts | 4,138 | 8 | 2,946 | 8 | 71.19 | 6 |
| Michigan | 3,944 | 11 | 2,767 | 11 | 70.16 | 13 |
| Minnesota | 3,608 | 20 | 2,538 | 19 | 70.34 | 12 |
| Mississippi | 2,192 | 50 | 1,292 | 50 | 58.94 | 50 |
| Missouri | 3,459 | 26 | 2,373 | 26 | 68.60 | 28 |
| Montana | 3,124 | 33 | 2,127 | 33 | 68.09 | 31 |
| Nebraska | 3,643 | 19 | 2,580 | 16 | 70.82 | 7 |
| Nevada | 4,359 | 4 | 3,138 | 4 | 71.99 | 3 |
| New Hampshire | 3,474 | 25 | 2,365 | 27 | 68.08 | 32 |
| New Jersey | 4,278 | 6 | 2,992 | 7 | 69.94 | 16 |
| New Mexico | 2,893 | 40 | 1,909 | 40 | 65.99 | 40 |
| New York | 4,421 | 3 | 3,170 | 3 | 71.70 | 4 |
| North Carolina | 2,890 | 41 | 1,907 | 41 | 65.99 | 40 |
| North Dakota | 3,011 | 38 | 2,049 | 36 | 68.05 | 33 |
| Ohio | 3,779 | 14 | 2,633 | 15 | 69.67 | 21 |
| Oklahoma | 3,065 | 34 | 2,056 | 35 | 67.08 | 36 |
| Oregon | 3,565 | 22 | 2,473 | 24 | 69.37 | 22 |
| Pennsylvania | 3,664 | 17 | 2,538 | 19 | 69.27 | 25 |
| Rhode Island | 3,788 | 15 | 2,644 | 14 | 69.98 | 15 |
| South Carolina | 2,581 | 47 | 1,623 | 47 | 62.88 | 46 |
| South Dakota | 3,052 | 35 | 2,105 | 34 | 68.97 | 26 |
| Tennessee | 2,810 | 44 | 1,806 | 44 | 64.27 | 44 |
| Texas | 3,254 | 32 | 2,191 | 32 | 67.33 | 35 |
| Utah | 2,994 | 39 | 2,006 | 39 | 67.00 | 37 |
| Vermont | 3,267 | 31 | 2,239 | 30 | 68.53 | 29 |
| Virginia | 3,293 | 30 | 2,222 | 31 | 67.48 | 34 |
| Washington | 3,835 | 12 | 2,686 | 13 | 70.04 | 14 |
| West Virginia | 2,610 | 46 | 1,628 | 46 | 62.38 | 49 |
| Wisconsin | 3,647 | 18 | 2,549 | 18 | 69.89 | 18 |
| Wyoming | 3,445 | 27 | 2,388 | 25 | 69.32 | 23 |
| UNITED STATES | 3,675 | | 2,556 | | 69.55 | |

[a] Adapted from Roe L. Johns and Oscar A. Hamilton, Jr., "Ability and Effort of the States to Support Public Schools" (Gainesville, Fla.: National Educational Finance Project, 1970), 15pp. (Mimeo)

On the other side of the ledger, it must be noted that education is only one of the public services which are financed by states and local governments. Older persons, for example, may not require education but they are likely to require other public services which school age children do not require. Using income per school age child as a measure of fiscal capacity tends to ignore the fact that other public services also must be financed by the states. The use of net income as shown in Table 4-1 tends to adjust for this factor.

Income per child in average daily attendance has also been proposed as an alternative measure of fiscal capacity. It is claimed that this measure reflects the actual educational "load" since it is based on the children actually in school. This measure, of course, markedly affects the apparent fiscal capacity of states or school districts in which a high percentage of the children attend nonpublic schools or which have a substantial number of children who are not in school. Comparing the rankings of the states on income per school age child versus income per child in ADA, it will be noted that 14 states changed in ranking by five or more places. Seven states (California, Florida, Indiana, Maine, Nevada, Oregon and Washington) declined in apparent fiscal capacity by five or more places while the other seven states (Hawaii, Kansas, Kentucky, Louisiana, Missouri, New Hampshire and Wisconsin) increased by five or more places.

Net personal income per child in ADA (or ADM) is a better measure of a state's ability to support education because it reflects the net personal income after deducting $750 per capita for subsistence and federal personal income taxes paid. That measure of ability is also shown in Table 4-2. It will be noted that the use of this measure causes some changes in the ability ranking of the states.

### Fiscal Capacity of States Using Various Tax Bases

Due has estimated the amount of additional revenue which might be obtained from taxes levied by the states on personal income and corporate income.[7] In 1969 the 50 states received revenue totaling approximately $7.58 billion from taxes on personal income and approximately $3.18 billion from taxes on corporate income. Due estimated that if all states had levied a personal in-

## TABLE 4-2

### COMPARISON OF PERSONAL INCOME PER SCHOOL AGE CHILD (5-17), AND PERSONAL INCOME PER CHILD IN AVERAGE DAILY ATTENDANCE, 1969

| *State* | *Personal Income Per School Age Child*[a] | *Rank* | *Personal Income Per Child in ADA*[a] | *Rank* | *Net Income Per Child in ADA* | *Rank* |
|---|---|---|---|---|---|---|
| Alabama | 9,526 | 46 | 11,731 | 46 | 7,210 | 49 |
| Alaska | 13,674 | 19 | 17,354 | 18 | 14,027 | 8 |
| Arizona | 11,675 | 34 | 14,581 | 30 | 10,299 | 30 |
| Arkansas | 9,489 | 47 | 11,983 | 45 | 7,629 | 45 |
| California | 16,695 | 5 | 18,032 | 11 | 14,231 | 7 |
| Colorado | 13,256 | 25 | 15,126 | 28 | 10,768 | 27 |
| Connecticut | 18,305 | 2 | 23,166 | 2 | 16,917 | 2 |
| Delaware | 14,886 | 12 | 18,358 | 9 | 13,062 | 13 |
| Florida | 14,050 | 15 | 17,061 | 21 | 11,694 | 23 |
| Georgia | 11,303 | 35 | 13,981 | 33 | 9,304 | 35 |
| Hawaii | 13,909 | 17 | 18,275 | 10 | 13,263 | 11 |
| Idaho | 10,495 | 42 | 12,324 | 44 | 7,890 | 43 |
| Illinois | 16,618 | 6 | 22,814 | 3 | 16,567 | 4 |
| Indiana | 13,802 | 18 | 16,540 | 24 | 11,733 | 22 |
| Iowa | 13,248 | 26 | 15,806 | 25 | 11,085 | 25 |
| Kansas | 13,272 | 24 | 17,215 | 19 | 12,253 | 19 |
| Kentucky | 10,788 | 39 | 14,201 | 32 | 9,410 | 34 |
| Louisiana | 9,705 | 45 | 13,409 | 37 | 8,386 | 42 |
| Maine | 11,714 | 32 | 13,174 | 40 | 8,990 | 37 |
| Maryland | 15,229 | 9 | 18,901 | 8 | 13,748 | 10 |
| Massachusetts | 16,757 | 4 | 21,355 | 6 | 15,488 | 5 |
| Michigan | 14,437 | 13 | 17,601 | 16 | 12,414 | 17 |
| Minnesota | 13,044 | 27 | 15,547 | 26 | 11,072 | 26 |
| Mississippi | 7,697 | 50 | 9,977 | 50 | 5,624 | 50 |
| Missouri | 13,528 | 20 | 17,751 | 15 | 12,403 | 18 |
| Montana | 11,138 | 36 | 13,424 | 36 | 9,111 | 36 |
| Nebraska | 13,514 | 22 | 16,645 | 22 | 11,870 | 21 |
| Nevada | 16,296 | 7 | 17,960 | 12 | 13,132 | 12 |
| New Hampshire | 13,527 | 21 | 17,762 | 14 | 12,649 | 14 |
| New Jersey | 17,087 | 3 | 22,470 | 4 | 16,654 | 3 |
| New Mexico | 9,025 | 49 | 10,777 | 49 | 7,224 | 48 |
| New York | 18,547 | 1 | 25,976 | 1 | 18,772 | 1 |
| North Carolina | 10,979 | 37 | 13,610 | 35 | 8,926 | 39 |
| North Dakota | 10,523 | 41 | 13,046 | 41 | 8,932 | 38 |
| Ohio | 14,061 | 14 | 17,872 | 13 | 12,637 | 15 |
| Oklahoma | 12,227 | 30 | 13,948 | 34 | 9,502 | 32 |
| Oregon | 14,017 | 16 | 16,626 | 23 | 11,662 | 24 |
| Pennsylvania | 14,937 | 11 | 19,797 | 7 | 13,861 | 9 |
| Rhode Island | 15,905 | 8 | 21,537 | 5 | 15,223 | 6 |
| South Carolina | 9,259 | 48 | 11,691 | 47 | 7,242 | 47 |
| South Dakota | 10,612 | 40 | 12,461 | 43 | 8,834 | 40 |
| Tennessee | 10,937 | 38 | 13,384 | 38 | 8,617 | 41 |
| Texas | 11,700 | 33 | 14,988 | 29 | 10,250 | 31 |
| Utah | 9,788 | 44 | 10,898 | 48 | 7,351 | 46 |
| Vermont | 12,509 | 29 | 14,565 | 31 | 10,489 | 29 |
| Virginia | 12,667 | 28 | 15,395 | 27 | 10,598 | 28 |
| Washington | 15,049 | 10 | 17,121 | 20 | 12,052 | 20 |
| West Virginia | 10,453 | 43 | 12,758 | 42 | 7,785 | 44 |
| Wisconsin | 13,359 | 23 | 17,432 | 17 | 12,566 | 16 |
| Wyoming | 11,791 | 31 | 13,199 | 39 | 9,453 | 33 |
| U. S. | 14,013 | | 17,615 | | 12,400 | |

[a] Adapted from Research Division, National Education Association, *Rankings of the States, 1971.* Research Report 1971-RI (Washington, D. C. the Association, 1971), p. 32.

come tax with a rate progression of from 4 to 10 per cent and with an exemption of $600 per person, (the Oregon model), an additional $12.47 billion of revenue could have been obtained in 1969. He also estimated that if all states had levied a corporate income tax at a 7 percent rate, they would have obtained an additional $2.43 billion in revenue in 1969.

Due also developed estimates of the potential revenue which could be obtained from a sales tax in each state.[8] Whereas the 50 states received a total of $12.29 billion from sales taxes in 1969, Due estimated that if a sales tax had been levied in each state at a rate of 5 percent, additional revenue totaling $6.35 billion would be obtained; that a levy on consumer services at a 5 percent rate would have produced an additional $1.66 billion in revenue; and that eliminating exemptions from the sales tax base would have produced an additional $2.39 billion in revenue.

Using Due's estimates of the potential yield of personal and corporate income taxes and sales taxes in the various states, the staff of the National Educational Finance Project developed estimates of the total potential yield and the estimated per capita yield of the three taxes for each state. These estimates are shown in Table 4-3. A personal income tax levied at the Oregon rates by all states would have produced over $20 billion in revenue in 1969—compared with the $7.58 billion which was actually obtained from state taxes on personal income. If corporate income taxes had been levied by all states at a 7 percent rate they would have produced approximately $5.6 billion of revenue in 1969, compared with the $3.18 billion actually obtained by the states from corporate income taxes in 1969. A sale tax levied in each state at a 5 percent rate with no exemptions would have produced $22.575 billion of revenue, compared with the $12.296 billion obtained from sales taxes in 1969. The total estimated potential yield of the three taxes was $48.241 billion.

The estimated per capita yield of the three taxes provides an indication of the variations in fiscal capacity which exist among the 50 states. The estimated potential per capita yield of the three taxes for the United States as a whole was $240. The lowest estimated potential yield was $148 per capita in West Virginia; the highest estimated potential yield was $368 per capita for Nevada. Thus, if Nevada were to levy a personal income tax at the Oregon rates, a corporate income tax at a 7 percent rate, and a sales tax at a 5 percent rate with no exemptions, it would

### TABLE 4-3

### ESTIMATED POTENTIAL YIELD OF STATE TAXES ON PERSONAL INCOME, CORPORATE INCOME AND SALES, 1969[a]

| State | Personal Income Tax at Oregon Rates[b] (Millions of Dollars) | Corporate Income Tax at 7%[b] (Millions of Dollars) | Sales Tax at 5%—No Exemptions[b] (Millions of Dollars) | Total Estimated Yield of Three Taxes (Millions of Dollars) | Total Population (Thousands) | Estimated Per Capita Yield of Three Taxes (Dollars) | Rank |
|---|---|---|---|---|---|---|---|
| Alabama | 249 | 62 | 270 | 581 | 3,531 | 165 | 49 |
| Alaska | 33 | 5 | 40 | 78 | 282 | 277 | 7 |
| Arizona | 150 | 30 | 270 | 450 | 1,693 | 266 | 11 |
| Arkansas | 138 | 42 | 190 | 370 | 1,995 | 185 | 46 |
| California | 2,297 | 593 | 2,835 | 5,725 | 19,443 | 294 | 3 |
| Colorado | 204 | 45 | 225 | 474 | 2,100 | 226 | 29 |
| Connecticut | 378 | 86 | 335 | 799 | 3,000 | 266 | 11 |
| Delaware | 61 | 18 | 65 | 144 | 540 | 267 | 10 |
| Florida | 588 | 196 | 965 | 1,749 | 6,354 | 275 | 8 |
| Georgia | 381 | 85 | 565 | 1,031 | 4,641 | 222 | 30 |
| Hawaii | 87 | 16 | 170 | 273 | 794 | 344 | 2 |
| Idaho | 56 | 11 | 70 | 137 | 718 | 191 | 43 |
| Illinois | 1,313 | 437 | 1,285 | 3,035 | 11,047 | 275 | 8 |
| Indiana | 519 | 173 | 550 | 1,242 | 5,118 | 243 | 15 |
| Iowa | 280 | 42 | 345 | 667 | 2,781 | 240 | 17 |
| Kansas | 227 | 65 | 255 | 547 | 2,321 | 236 | 19 |
| Kentucky | 256 | 69 | 275 | 600 | 3,232 | 186 | 45 |
| Louisiana | 294 | 62 | 420 | 776 | 3,745 | 207 | 37 |
| Maine | 83 | 27 | 105 | 215 | 978 | 220 | 32 |
| Maryland | 420 | 55 | 440 | 915 | 3,765 | 243 | 15 |
| Massachusetts | 640 | 185 | 380 | 1,205 | 5,467 | 220 | 32 |
| Michigan | 567 | 272 | 1,095 | 1,934 | 8,766 | 221 | 31 |
| Minnesota | 336 | 83 | 395 | 844 | 3,700 | 228 | 28 |
| Mississippi | 146 | 68 | 220 | 434 | 2,360 | 184 | 47 |
| Missouri | 453 | 94 | 545 | 1,092 | 4,651 | 235 | 21 |
| Montana | 61 | 9 | 65 | 135 | 694 | 195 | 41 |
| Nebraska | 140 | 23 | 190 | 353 | 1,449 | 244 | 14 |
| Nevada | 53 | 15 | 100 | 168 | 457 | 368 | 1 |
| New Hampshire | 69 | 20 | 75 | 164 | 717 | 229 | 26 |
| New Jersey | 840 | 247 | 595 | 1,682 | 7,148 | 235 | 21 |
| New Mexico | 80 | 7 | 145 | 232 | 994 | 233 | 24 |
| New York | 2,250 | 610 | 2,290 | 5,150 | 18,321 | 281 | 6 |
| North Carolina | 408 | 132 | 440 | 980 | 5,205 | 188 | 44 |
| North Dakota | 51 | 5 | 70 | 126 | 615 | 205 | 39 |
| Ohio | 1,113 | 370 | 1,050 | 2,533 | 10,740 | 236 | 19 |
| Oklahoma | 218 | 57 | 290 | 565 | 2,568 | 220 | 32 |
| Oregon | 204 | 44 | 220 | 468 | 2,032 | 230 | 25 |
| Pennsylvania | 1,203 | 284 | 1,055 | 2,542 | 11,803 | 215 | 35 |
| Rhode Island | 96 | 28 | 100 | 224 | 911 | 246 | 13 |
| South Carolina | 190 | 48 | 255 | 493 | 2,692 | 183 | 48 |
| South Dakota | 59 | 13 | 85 | 155 | 659 | 235 | 21 |
| Tennessee | 306 | 86 | 420 | 812 | 3,985 | 204 | 40 |
| Texas | 996 | 330 | 1,235 | 2,561 | 11,187 | 229 | 26 |
| Utah | 87 | 18 | 115 | 220 | 1,045 | 211 | 36 |
| Vermont | 39 | 7 | 45 | 91 | 439 | 207 | 37 |
| Virginia | 423 | 95 | 385 | 903 | 4,669 | 193 | 42 |
| Washington | 363 | 110 | 520 | 993 | 3,402 | 292 | 4 |
| West Virginia | 135 | 5 | 130 | 270 | 1,819 | 148 | 50 |
| Wisconsin | 462 | 221 | 335 | 1,018 | 4,233 | 240 | 17 |
| Wyoming | 30 | 8 | 55 | 93 | 320 | 291 | 5 |
| TOTAL U. S. | 20,056 | 5,610 | 22,575 | 48,241 | 201,123 | 240 | |

[a] SOURCE: R. L. Johns and Oscar A. Hamilton, Jr., "Ability and Effort of the States to Support Education" (Gainesville, Fla.: National Educational Finance Project, 1970), 15 pp. (Mimeo)

[b] Calculated from data in John Due, "Alternative Tax Sources for Education", in *Economic Factors Affecting the Financing of Education* (Gainesville, Fla.: National Educational Finance Project, 1971), Tables 10-2 and 10-5.

realize nearly 2.5 times as much revenue as West Virginia would realize if it were to levy the same taxes at the same rates. However, if one takes the sixth ranking state (New York) and the 45th ranking state (Kentucky), the gap is narrowed considerably. The estimated potential per capita revenue for New York was $281 compared with $186 for Kentucky. Thus, on this particular set of measures the sixth ranking state had approximately 1.52 times as much fiscal capacity as the 45th ranking state.

The NEFP staff used several measures to examine the extent of the effort being made by the various states to support state and local governmental functions in relation to their fiscal capacity. The results of their analyses are shown in Table 4-4. In 1969 the general revenue available to state and local governments from their own tax sources totaled $95.011 billion. Over one-third of this amount, $32.069 billion, consisted of state and local revenue for elementary and secondary education. When expressed as a percentage of net personal income, the general revenue of state and local government accounted for nearly 18.5 percent of net personal income, with 6.24 percent of net personal income being allocated for elementary and secondary education. The percentage of net personal income devoted to elementary and secondary education ranged from a high of 8.9 percent in New Mexico to a low of 5.0 percent in Nebraska. It was found that 33.75 percent of the general revenue of state and local governments consisted of revenue for elementary and secondary education. The percentages ranged from a high of 39.73 percent in Utah to a low of 25.51 percent in Wyoming.

The data concerning fiscal capacity and tax effort of the 50 states contained in the preceding tables are summarized in Table 4-5 and the contrasts between the five states which ranked highest and lowest on each measure are emphasized. The five highest states had 1.76 times as much personal income per capita as did the five lowest states. The five states with the highest estimated potential yield from personal income, corporate income, and sales taxes would have obtained 1.72 times as much revenue from these levies as would the five lowest states. The five highest ranking states in terms of tax effort devoted 1.63 times as great a percentage of their net personal income to state and local taxes as did the five lowest ranking states. The five highest ranking states devoted 1.56 times as great a percentage of their net personal income to elementary and secondary education as did the five lowest

## TABLE 4-4

### EFFORTS OF THE STATES TO SUPPORT STATE AND LOCAL GOVERNMENTAL FUNCTIONS IN RELATION TO THEIR FISCAL CAPACITY, 1969[a]

| *State* | *Net Personal Income ($ Millions)* | *General Revenue of State and Local Governments From Own Sources[b] ($ Millions)* | *State and Local Revenue for Elementary and Secondary Education[c] ($ Millions)* | *General Revenue of State and Local Governments as a Percentage of Net Personal Income* | *Elementary and Secondary Education as a Percentage of Net Personal Income* | *State and Local Revenue for Elementary and Secondary Education as a Percentage of General Revenue of State and Local Governments From Own Sources* |
|---|---|---|---|---|---|---|
| Alabama | 5,669 | 1,122 | 312 | 19.79 (22) | 5.50 (43) | 27.81 (47) |
| Alaska | 950 | 183 | 59 | 19.26 (27) | 6.21 (30) | 32.24 (32) |
| Arizona | 3,879 | 826 | 299 | 21.29 (11) | 7.71 ( 6) | 36.20 (16) |
| Arkansas | 3,157 | 584 | 194 | 18.50 (30) | 6.15 (31) | 33.22 (27) |
| California | 60,198 | 12,822 | 3,900 | 21.30 (10) | 6.48 (23) | 30.42 (40) |
| Colorado | 5,233 | 1,052 | 346 | 20.10 (20) | 6.61 (19) | 32.89 (28) |
| Connecticut | 9,626 | 1,394 | 543 | 14.48 (49) | 5.64 (41) | 38.95 ( 4) |
| Delaware | 1,502 | 281 | 108 | 18.71 (28) | 7.19 (11) | 38.43 ( 7) |
| Florida | 14,857 | 2,740 | 941 | 18.44 (31) | 6.33 (27) | 34.34 (24) |
| Georgia | 9,425 | 1,685 | 541 | 17.88 (34) | 5.74 (38) | 32.11 (34) |
| Hawaii | 2,135 | 466 | 136 | 21.83 ( 7) | 6.37 (26) | 29.18 (45) |
| Idaho | 1,346 | 299 | 96 | 22.21 ( 6) | 7.13 (13) | 32.11 (34) |
| Illinois | 33,992 | 4,898 | 1,831 | 14.41 (50) | 5.39 (45) | 37.38 (10) |
| Indiana | 13,197 | 2,179 | 864 | 16.51 (43) | 6.55 (21) | 39.65 ( 2) |
| Iowa | 6,889 | 1,352 | 484 | 19.63 (23) | 7.03 (14) | 35.80 (17) |
| Kansas | 5,787 | 1,034 | 386 | 17.87 (35) | 6.67 (17) | 37.33 (12) |
| Kentucky | 6,046 | 1,171 | 347 | 19.37 (24) | 5.74 (38) | 29.63 (42) |
| Louisiana | 6,681 | 1,547 | 498 | 23.16 ( 5) | 7.45 ( 9) | 32.19 (33) |
| Maine | 1,984 | 359 | 128 | 18.09 (32) | 6.45 (24) | 35.65 (20) |
| Maryland | 10,784 | 1,879 | 729 | 17.42 (38) | 6.76 (16) | 38.80 ( 6) |
| Massachusetts | 16,107 | 2,841 | 840 | 17.64 (37) | 5.22 (48) | 29.57 (43) |
| Michigan | 24,258 | 4,694 | 1,563 | 19.35 (26) | 6.44 (25) | 33.30 (26) |
| Minnesota | 9,391 | 1,954 | 691 | 20.81 (15) | 7.36 (10) | 35.36 (21) |
| Mississippi | 3,048 | 763 | 239 | 25.03 ( 3) | 7.84 ( 5) | 31.32 (37) |

## TABLE 4-4 (CONTINUED)

| | | | | | | |
|---|---|---|---|---|---|---|
| Missouri | 11,036 | 1,758 | 609 | 15.93 (44) | 5.52 (42) | 34.64 (22) |
| Montana | 1,476 | 312 | 119 | 21.14 (12) | 8.06 ( 3) | 38.14 ( 8) |
| Nebraska | 3,739 | 693 | 187 | 18.53 (29) | 5.00 (50) | 26.98 (49) |
| Nevada | 1,434 | 285 | 85 | 19.87 (21) | 5.93 (33) | 29.82 (41) |
| New Hampshire | 1,696 | 263 | 91 | 15.51 (47) | 5.37 (46) | 34.60 (23) |
| New Jersey | 21,834 | 3,406 | 1,248 | 15.60 (46) | 5.72 (39) | 36.64 (14) |
| New Mexico | 1,898 | 473 | 169 | 24.92 ( 4) | 8.90 ( 1) | 35.73 (18) |
| New York | 58,080 | 12,472 | 4,057 | 21.47 ( 9) | 6.99 (15) | 32.53 (31) |
| North Carolina | 9,924 | 1,721 | 585 | 17.34 (39) | 5.89 (35) | 33.99 (25) |
| North Dakota | 1,260 | 322 | 90 | 25.56 ( 2) | 7.14 (12) | 27.95 (46) |
| Ohio | 28,278 | 4,196 | 1,499 | 14.84 (48) | 5.30 (47) | 35.72 (19) |
| Oklahoma | 5,280 | 1,022 | 299 | 19.36 (25) | 5.66 (40) | 29.26 (44) |
| Oregon | 5,025 | 1,025 | 403 | 20.40 (16) | 8.02 ( 4) | 39.32 ( 3) |
| Pennsylvania | 29,954 | 4,739 | 1,842 | 15.82 (45) | 6.15 (31) | 38.87 ( 5) |
| Rhode Island | 2,409 | 403 | 124 | 16.73 (41) | 5.15 (49) | 30.77 (39) |
| South Carolina | 4,370 | 786 | 291 | 17.99 (33) | 6.66 (18) | 37.02 (13) |
| South Dakota | 1,387 | 302 | 82 | 21.77 ( 8) | 5.91 (34) | 27.15 (48) |
| Tennessee | 7,196 | 1,284 | 422 | 17.84 (36) | 5.86 (36) | 32.87 (29) |
| Texas | 24,513 | 4,036 | 1,331 | 16.67 (42) | 5.43 (44) | 32.57 (30) |
| Utah | 2,096 | 443 | 176 | 21.14 (12) | 8.40 ( 2) | 38.73 ( 1) |
| Vermont | 983 | 198 | 74 | 20.14 (19) | 7.53 ( 8) | 37.37 (11) |
| Virginia | 10,374 | 1,796 | 652 | 17.31 (40) | 6.28 (28) | 36.30 (15) |
| Washington | 9,137 | 1,845 | 571 | 20.19 (18) | 6.25 (29) | 30.95 (38) |
| West Virginia | 2,961 | 602 | 226 | 20.33 (17) | 7.63 ( 7) | 37.54 ( 9) |
| Wisconsin | 10,792 | 2,262 | 713 | 20.96 (14) | 6.61 (19) | 31.52 (36) |
| Wyoming | 764 | 196 | 50 | 25.65 ( 1) | 6.54 (22) | 25.51 (50) |
| TOTAL U. S. | 514,043 | 95,011 | 32,069 | 18.48 | 6.24 | 33.75 |

[a]SOURCE: R. L. Johns and Oscar A. Hamilton, Jr., "Ability and Effort of the States to Support Education" (Gainesville, Fla.: National Educational Finance Project, 1970), 15 pp. (Mimeo)

[b]U. S. Department of Commerce, Bureau of the Census, *Governmental Finances in 1968-69*, G.F. 69, No. 5.

[c]National Education Association, Research Division, Research Report 1969 R-15, *Estimates of School Statistics, 1969-70.*

### TABLE 4-5

### SUMMARY OF DATA CONCERNING FISCAL CAPACITY AND TAX EFFORT OF THE STATES

| | *Personal Income Per Capita (Table 4-1)* | *Net Personal Income Per Capita (Table 4-1)* | *Estimated Yield of Three Taxes Per Capita (Table 4-2)* | *General Revenue of State and Local Governments From Own Sources as a Percentage of Net Personal Income (Table 4-3)* | *State and Local Revenue for Elementary and Secondary Education as a Percentage of Net Personal Income (Table 4-3)* | *State and Local Revenue for Elementary and Secondary Education as a Percentage of General Revenue of State and Local Governments From Own Sources (Table 4-3)* |
|---|---|---|---|---|---|---|
| U.S. Total or Avg. | $ 3,675 | $ 2,556 | $ 240 | 18.48 | 6.24 | 33.75 |
| High State<br>Amount | Conn.<br>4,537 | Alaska<br>3,369 | Nevada<br>368 | Wyo.<br>25.65 | N. Mex.<br>8.90 | Utah<br>39.73 |
| Low State<br>Amount | Miss.<br>2,192 | Miss.<br>1,292 | W. Va.<br>148 | Ill.<br>14.41 | Neb.<br>5.00 | Wyo.<br>25.51 |
| Ratio High-Low | 2.07/1.00 | 2.61/1.00 | 2.49/1.00 | 1.78/1.00 | 1.78/1.00 | 1.56/1.00 |
| Five Highest States | Conn.<br>Alaska<br>N. York<br>Nevada<br>Ill. | Alaska<br>Conn.<br>N. York<br>Nevada<br>Calif. | Nevada<br>Hawaii<br>Calif.<br>Wash.<br>Wyo. | Wyo.<br>N. Dak.<br>Miss.<br>N. Mex.<br>La. | N. Mex.<br>Utah<br>Mont.<br>Ore.<br>Miss. | Utah<br>Ind.<br>Ore.<br>Conn.<br>Pa. |
| Weighted Avg., Five Highest | $ 4,394 | $ 3,139 | $ 297 | 24.18 | 8.17 | 39.14 |
| Five Lowest States | Miss.<br>Ark.<br>S. Car.<br>Ala.<br>W. Va. | Miss.<br>Ark.<br>Ala.<br>S. Car.<br>W. Va. | W. Va.<br>Ala.<br>S. Car.<br>Miss.<br>Ark. | Ill.<br>Conn.<br>Ohio<br>N.H.<br>N.J. | Nebr.<br>R.I.<br>Mass.<br>Ohio<br>N.H. | Wyo.<br>Nebr.<br>S. Dak.<br>Ala.<br>N. Dak. |
| Weighted Avg., Five Lowest | 2,497 | 1,549 | 173 | 14.84 | 5.25 | 27.36 |
| Ratio Highest to Lowest Weighted Avg. | 1.76/1.00 | 2.03/1.00 | 1.72/1.00 | 1.63/1.00 | 1.56/1.00 | 1.43/1.00 |

SOURCE: R. L. Johns and Oscar A. Hamilton, Jr., "Ability and Effort of the States to support Education" (Gainesville, Fla.: National Educational Finance Project, 1970), 15 PP. (Mimeo) ranking states. The percentage of general revenue devoted to elementary and secondary education was 1.43 times as great in the five highest ranking states as it was in the five lowest ranking states.

It is clear from these data that considerable variation does exist among the states—both with regard to their fiscal capacity as measured by three major tax bases and with regard to their effort to raise revenue to support state and local governmental functions, including education. A correlation of −.29 was found between percent of net income allocated to revenue for the public schools (state effort to support education) and per capita net income. While this is a relatively low correlation, it does indicate that the less wealthy states were exerting a somewhat greater effort to support education than were the wealthier states.

### Studies by the Advisory Commission on Intergovernmental Relations

The Advisory Commission on Intergovernmental Relations (ACIR) regularly conducts studies of state and local fiscal capacity and effort. The Commission's landmark study published in 1962[9] has recently been augmented by an even more comprehensive study based on data for 1966-67.[10] In the latter study ACIR used an "average financing system" approach to measuring fiscal capacity. In this approach the fiscal capacity of any area is defined as "the total amount of revenue that would result by applying, within the area, the national average rate of each of the numerous kinds of state-local revenue sources."[11] The sources of revenue included tax revenue, fees and charges collected in connection with governmental services (such as tuition fees at colleges and charges at public hospitals), interest earned on financial assets, and nontax revenue such as money obtained from the operation of state liquor stores or public utilities.

In Table 4-6 are shown the revenue capacity, the actual revenue received by state and local governments, and the personal income per capita in each of the 50 states for 1968-69. The estimated revenue capacity is the total amount of revenue which could be raised if a state levied all taxes at the average national rate and received nontax revenue at the average national rate. The index measures indicate the extent to which a state is actually using its revenue capacity in comparison with the national

## TABLE 4-6

## MEASURES OF STATE-LOCAL TAX CAPACITY AND TAX EFFORT FOR STATES: 1968–69

| | *Per capita amounts* | | | *Index measures (per capita) amounts as % of U.S. averages)* | | | |
|---|---|---|---|---|---|---|---|
| *State* | *Tax capacity* | *Tax revenue* | *Personal income (1968)* | *Tax Capacity* | *Tax revenue* | *Personal income (1968)* | *Relative tax effort* |
| U.S. | 386 | 386 | 3,421 | 100 | 100 | 100 | 100 |
| Alabama | 270 | 227 | 2,337 | 70 | 59 | 68 | 84 |
| Alaska | 403 | 399 | 4,146 | 104 | 103 | 121 | 99 |
| Arizona | 381 | 393 | 3,027 | 99 | 102 | 88 | 103 |
| Arkansas | 299 | 222 | 2,322 | 77 | 58 | 68 | 74 |
| California | 472 | 547 | 3,968 | 122 | 142 | 116 | 116 |
| Colorado | 398 | 392 | 3,340 | 103 | 102 | 98 | 98 |
| Connecticut | 451 | 397 | 4,256 | 117 | 103 | 124 | 88 |
| Delaware | 465 | 377 | 3,795 | 120 | 98 | 111 | 81 |
| Dist. of Columbia | 465 | 426 | 4,464 | 120 | 110 | 130 | 92 |
| Florida | 419 | 338 | 3,191 | 109 | 88 | 93 | 81 |
| Georgia | 314 | 273 | 2,781 | 81 | 71 | 81 | 87 |
| Hawaii | 381 | 492 | 3,513 | 99 | 127 | 103 | 129 |
| Idaho | 338 | 340 | 2,668 | 88 | 88 | 78 | 100 |
| Illinois | 431 | 376 | 3,981 | 112 | 97 | 116 | 87 |
| Indiana | 375 | 338 | 3,412 | 97 | 88 | 100 | 90 |
| Iowa | 385 | 395 | 3,265 | 100 | 102 | 95 | 103 |
| Kansas | 405 | 351 | 3,303 | 105 | 91 | 97 | 87 |
| Kentucky | 312 | 278 | 2,645 | 81 | 72 | 77 | 89 |
| Louisiana | 364 | 301 | 2,634 | 94 | 78 | 77 | 83 |
| Maine | 316 | 321 | 2,824 | 82 | 83 | 83 | 102 |
| Maryland | 398 | 416 | 3,742 | 103 | 108 | 109 | 105 |
| Massachusetts | 382 | 455 | 3,835 | 99 | 118 | 112 | 119 |
| Michigan | 404 | 439 | 3,675 | 105 | 114 | 107 | 109 |
| Minnesota | 367 | 413 | 3,341 | 95 | 107 | 98 | 112 |
| Mississippi | 252 | 245 | 2,081 | 65 | 63 | 61 | 98 |
| Missouri | 373 | 304 | 3,257 | 97 | 79 | 95 | 81 |
| Montana | 391 | 356 | 2,942 | 101 | 92 | 86 | 91 |
| Nebraska | 416 | 361 | 3,239 | 108 | 94 | 95 | 87 |
| Nevada | 669 | 475 | 3,957 | 173 | 123 | 116 | 71 |
| New Hampshire | 422 | 325 | 3,259 | 109 | 84 | 95 | 77 |
| New Jersey | 410 | 411 | 3,954 | 106 | 106 | 116 | 100 |
| New Mexico | 355 | 324 | 2,651 | 92 | 84 | 77 | 91 |
| New York | 418 | 580 | 4,151 | 108 | 150 | 121 | 139 |
| North Carolina | 308 | 267 | 2,664 | 80 | 69 | 78 | 87 |
| North Dakota | 352 | 333 | 2,730 | 91 | 86 | 80 | 95 |
| Ohio | 387 | 318 | 3,509 | 100 | 82 | 103 | 82 |
| Oklahoma | 392 | 290 | 2,880 | 102 | 75 | 84 | 74 |
| Oregon | 401 | 406 | 3,317 | 104 | 105 | 97 | 101 |
| Pennsylvania | 350 | 346 | 3,419 | 91 | 90 | 100 | 99 |
| Rhode Island | 355 | 380 | 3,549 | 92 | 98 | 104 | 107 |
| South Carolina | 254 | 227 | 2,380 | 66 | 59 | 70 | 89 |
| South Dakota | 349 | 353 | 2,876 | 90 | 91 | 84 | 101 |
| Tennessee | 302 | 254 | 2,579 | 78 | 66 | 75 | 84 |
| Texas | 388 | 280 | 3,029 | 101 | 73 | 89 | 72 |
| Utah | 326 | 337 | 2,790 | 84 | 87 | 82 | 104 |
| Vermont | 339 | 394 | 3,072 | 88 | 102 | 90 | 116 |
| Virginia | 337 | 323 | 3,068 | 87 | 84 | 90 | 96 |
| Washington | 424 | 434 | 3,688 | 110 | 112 | 108 | 102 |
| West Virginia | 284 | 269 | 2,470 | 74 | 70 | 72 | 95 |
| Wisconsin | 358 | 441 | 3,363 | 93 | 114 | 98 | 123 |
| Wyoming | 530 | 413 | 3,190 | 137 | 107 | 93 | 78 |

Source: Adapted from Advisory Commission on Intergovernmental Relations, *Measuring the Fiscal Capacity and Effort of State and Local Areas* (Washington, D.C.: Government Printing Office, 1971), Table G-14.

average. In 24 states the income index differed from the revenue capacity index substantially. For example, in Wyoming, personal income was only 93 percent of the national average and tax capacity 135 percent; in Florida, personal income was 93 percent and tax capacity 109 percent; and in Nevada, personal income was 116 percent and tax capacity was 173 percent.

Conversely, in Rhode Island, personal income was 104 percent of the national average and tax capacity, 92 percent; in Alaska, personal income was 121 percent and tax capacity, 104 percent; and in Massachusetts, personal income was 112 percent and tax capacity, 99 percent.

Space does not permit the reproduction of other significant tables produced by the Advisory Commission on Intergovernmental Relations. Following are the observations made by the Commission with regard to the relative revenue capacity and effort of states and local governments:[12]

1. A 2.6 to 1 range existed in revenue capacity of the 50 states (from $670 per capita in Nevada to $259 per capita in South Carolina).
2. Greater interstate variation existed in revenue capacity than existed in per capita personal income, where the range from the highest to lowest state was 2.1 to 1 in 1966.
3. Regional factors are important. The seven lowest ranking states all were located in the South; the five highest capacity states all were located in the West.
4. In 29 states per capita personal income *understated* relative fiscal capacity as measured by the average financing system method by at least 2 percent. In 19 states per capita personal income *overstated* relative fiscal capacity by at least 2 percent.
5. In states where mining or tourism are important elements of the economy the revenue raising capacity of the state is likely to be greater than the per capita personal income of its residents would suggest.
6. Most of the states with less revenue raising capability than per capita personal income would suggest were located in the northeastern or north central regions of the country, are generally quite heavily urban in character, and have had population growth less rapid than the national average in recent years.

7. Regional patterns were less evident for revenue effort than they are for revenue capacity. The four highest states (Hawaii, New York, Vermont and Wisconsin) and the four lowest states (Illinois, Nevada, New Hampshire and Texas) are widely scattered geographically.
8. The southern states, when compared with those in other regions of the country, tended to exhibit (1) a lower level of per capita revenue capacity, (2) somewhat less overall tax effort but greater-than-average use of nontax revenue capacity, (3) less reliance on property taxation, and (4) a lower level of effort with regard to taxes on business.
9. A correlation of .633 was found between per capita estimated revenue capacity and per capita personal income of the states, and a correlation of .833 was found between per capita estimated revenue capacity and a composite measure in which property tax yield and personal income were weighted equally. Thus, for areas as large as states the three approaches to measuring fiscal capacity produced rather similar results.

### Implications

It is clear from the data which have been presented that substantial variations in fiscal capacity and effort do exist among the 50 states. Whether one uses a single measure of fiscal capacity (such as personal income per capita), or an index of fiscal capacity which employs a composite of several techniques, it has been shown consistently that a large part of the differences in school expenditure levels among these states can be explained by variations in their fiscal capacity.

The variation in fiscal capacity which occurs among the states is, for the most part, beyond the control of the individual states. Much of the variation is the result of differences in the natural resources of the states. Differences in the relative tax paying capacity of the states seem to be declining over time, but the rate of decline is not rapid. Although some states apparently have succeeded in increasing their taxable wealth over time through policies designed to attract and hold human and fiscal resources, there is no quick and easy way in which a state can increase its wealth relative to other states.

Differences in the fiscal capacity of the states inevitably lead to variations in expenditure levels and variations in tax burdens. A state with limited revenue capacity will be able to match the expenditure levels of wealthier states only if it is willing to exert a substantially higher-than-average tax effort. It is much more common to find a relatively low level of governmental services (as evidenced by low expenditure levels) in states which have relatively low fiscal capacity. Since there is little that a state itself can do to alter its revenue potential, at least in the short run, it would appear that only the federal government is in a position to take action to reduce the variations in fiscal capacity which exist among the states. Although virtually any federal aid would tend to reduce differences in revenue capacity among the states to some degree, it should be noted that fewer federal dollars would be required to reduce variations in revenue capacity if equalization factors were incorporated into federal aid programs.

## VARIATIONS IN FISCAL CAPACITY AND EFFORT AMONG SCHOOL DISTRICTS AND OTHER UNITS OF LOCAL GOVERNMENT

Variations in fiscal capacity among school districts and other units of local government typically are greater than the variations in fiscal capacity which exist among states. Most studies dealing with the fiscal capacity and effort of units of local government have dealt with variation within a state, primarily because of the difficulties involved in securing comparable data for units of local government located in several states. Recently, however, studies have been completed utilizing data obtained from the Census of Governments which is conducted every five years by the U.S. Bureau of the Census. Of particular interest in this regard are a study of metropolitan areas and counties reported by the Advisory Commission on Intergovernmental Relations (ACIR) and a study of the fiscal capacity of school districts undertaken as a part of the National Educational Finance Project.

### Fiscal Capacity and Effort of Standard Metropolitan Statistical Areas

The ACIR study utilized data for 215 standard metropolitan statistical areas (SMSA's) as defined by the Bureau of the Census. The revenue capacity of local governments ranged from a high of $343 per capita to a low of less than $100 per capita. Fiscal effort by local governments also showed considerable variation with a high of 46 percent above the national average and a low of 40 percent below the national average.

Table 4-7 provides a summary of comparative measures of state and local government revenue capacity and revenue effort for the 215 SMSA's categorized by location and population size. In commenting upon these data, ACIR noted:

- Southern SMSA's average lower than those elsewhere not only in revenue capacity and actual revenue per capita, but also in relative revenue effort. . . .
- Southern SMSA's generally resemble those elsewhere in the proportions of their local government capacity represented by the various revenue components shown in the table, with one exception: because public operation of municipal utilities is somewhat more common in the South than elsewhere, potential utility surpluses make up a larger revenue component in Southern SMSA's. . . .
- The 30 largest SMSA's—those with a million inhabitants or more—stand out conspicuously above the others in per capita revenue capacity and actual revenue. Their relative revenue effort also averages higher than that of any other size group, though not dramatically so.
- The four SMSA groups of less than a half-million population resemble one another in state-local revenue capacity per capita, but less populous areas show less actual revenue and, therefore, a generally lower level of revenue effort. . . . Except for the SMSA's of under 100,000, each size group shows local property tax effort above the national average, with the highest index reported for the areas of 200,000 to 300,000 population.
- Some material differences appear among the several size-groups of SMSA's in the composition of local revenue capacity: with decreasing population size of area, the share contributed by farm property taxes moves up consistently, while the (far larger) proportion contributed by taxation of nonfarm residential property drops off. Perhaps rather surprisingly, the business property tax share of the local revenue base averages about the same for each of the size groups of areas.[13]

### Fiscal Capacity and Effort of Counties

The ACIR study also examined revenue capacity and effort for 666 selected county areas in the United States. Data summarizing the revenue capacity of these selected counties (on a state-by-state basis) are shown in Table 4-8 and indexes of revenue effort are shown in Table 4-9. For local government sources only (counties in this instance) per capita revenue capacity exhibited a range of 11 to 1—from $420 per capita in Washoe County, Nevada to $38 per capita in Berkeley County, South Carolina. The range in the county revenue effort was 4.9 to 1, with a range of 7 to 1 on the property tax effort of county governments. It should be noted, of course, that these comparisons were for entire counties and revealed nothing about the variations in revenue capacity and effort which may occur for smaller areas within these counties.

### Fiscal Capacity and Effort of School Districts

Most studies of the fiscal capacity and effort of school districts have employed the value of property per pupil in average daily attendance (or average daily membership) as the criterion of fiscal capacity and the property tax rate as the criterion of fiscal effort. This procedure is understandable, since very few school districts have authority to levy a tax on any base other than property. In addition, it has been very difficult to conduct studies of the fiscal capacity of school districts based on income because of the difficulty of obtaining reasonably accurate estimates of income for school districts. It has frequently been shown, however, that property value per pupil or per capita is not closely related to income although presumably all taxes must eventually be paid from income.

In a study conducted for the National Educational Finance Project, Rossmiller, Hale and Frohreich utilized a sample of 223 school districts drawn from eight states to study the fiscal capacity and effort of school districts.[14] The study included representation from seven categories of school districts: major urban core cities, minor urban core cities, independent cities, established suburbs, developing suburbs, small cities, and small towns. Data concerning revenues and expenditures of school districts, as well as data concerning market value of property, personal income and retail sales in each of the school districts were obtained

TABLE 4-7

SUMMARY COMPARATIVE MEASURES OF STATE AND LOCAL GOVERNMENT REVENUE, REVENUE CAPACITY, AND REVENUE EFFORT FOR 215 METROPOLITAN AREAS, BY LOCATION AND POPULATION-SIZE: 1966–67

| *Item* | *U.S. average*[a] | *Index measures for SMSA's (unweighted mean ratios; related U.S. averages=100)* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *All population sizes of SMSA's* | | | *Area population, 1966 (000)* | | | | | |
| | | *Total* | *South*[b] | *Non-south* | *1,000-plus* | *500-999* | *300-499* | *200-299* | *100-199* | *Under 100* |
| Number of areas | — | 215 | 81 | 134 | 30 | 36 | 28 | 45 | 56 | 20 |
| Per capita revenue capacity (on U.S.-average-rate basis): | | | | | | | | | | |
| State and local sources | $396 | 100 | 95 | 104 | 113 | 103 | 99 | 96 | 97 | 97 |
| State government sources | $195 | 104 | 102 | 106 | 112 | 104 | 102 | 101 | 103 | 109 |
| Local government sources | $201 | 96 | 88 | 102 | 115 | 101 | 96 | 92 | 91 | 85 |
| Per capita actual revenue: | | | | | | | | | | |
| State and local governments | $396 | 97 | 88 | 103 | 113 | 101 | 96 | 94 | 92 | 89 |
| Local governments only | $201 | 92 | 76 | 101 | 117 | 99 | 90 | 86 | 84 | 78 |
| Relative revenue effort (with capacity estimated on U.S.-average-rate basis): | | | | | | | | | | |
| State and local governments | 100% | 97 | 93 | 99 | 100 | 98 | 97 | 95 | 95 | 91 |
| Local governments only | 100% | 95 | 87 | 99 | 102 | 98 | 93 | 93 | 92 | 91 |
| Relative revenue effort of local governments (with capacity estimated on State-adjusted basis): | | | | | | | | | | |
| All local revenue sources | 100% | 97 | 94 | 99 | 100 | 99 | 98 | 99 | 95 | 89 |
| Local property taxes | 100% | 103 | 103 | 104 | 104 | 105 | 104 | 109 | 101 | 95 |
| Local nonproperty taxes | 100% | 66 | 65 | 67 | 86 | 71 | 74 | 67 | 54 | 49 |
| Charges and miscellaneous general revenue | 100% | 98 | 92 | 101 | 98 | 98 | 102 | 96 | 97 | 95 |
| Utility surpluses | 100% | 105 | 103 | 106 | 100 | 103 | 115 | 107 | 104 | 101 |

TABLE 4-7 (CONTINUED)

| Item | U.S. average[a] | Index measures for SMSA's (unweighted mean ratios; related U.S. averages = 100) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | All population sizes of SMSA's | | | Area population, 1966 (000) | | | | | |
| | | Total | South[b] | Non-south | 1,000-plus | 500-999 | 300-499 | 200-299 | 100-199 | Under 100 |
| Proportion of revenue capacity of local governments represented by: | | | | | | | | | | |
| Property taxation of— | | | | | | | | | | |
| Nonfarm residential property | 30.2% | 98 | 92 | 102 | 105 | 105 | 98 | 98 | 96 | 83 |
| Business property | 25.3% | 107 | 110 | 105 | 109 | 106 | 107 | 105 | 105 | 116 |
| Farm property | 5.2% | 77 | 78 | 76 | 36 | 38 | 77 | 59 | 112 | 146 |
| Other local taxes | 12.8% | 111 | 116 | 107 | 101 | 107 | 113 | 113 | 112 | 120 |
| Charges and miscellaneous general revenue sources | 22.8% | 94 | 93 | 94 | 100 | 94 | 94 | 98 | 91 | 86 |
| Utility surpluses | 3.7% | 100 | 118 | 89 | 82 | 122 | 89 | 106 | 103 | 84 |

[a] Averages shown pertain to the entire U.S., rather than relating only to areas reported here.

[b] SMSA's in 14 Southern States.

Source: Advisory Commission on Intergovernmental Relations *Measuring the Fiscal Capacity and Effort of State and Local Areas* (Washington, D.C.: Government Printing Office, 1971), Table 11.

TABLE 4-8

INDEXES OF PER CAPITA REVENUE CAPACITY (ON STATE-ADJUSTED BASIS), FOR 666 SELECTED COUNTY AREAS, BY STATES: 1966–67 (U.S. AVERAGE PER CAPITA AMOUNTS = 100)

| | *Areas reported* | | *State and local government sources* | | | | *Local government sources* | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *State* | *Number* | *Percent of State population (1966)* | *Average*[a] | *Highest* | *Lowest* | *Ratio of high to low (=1)* | *Average*[a] | *Highest* | *Lowest* | *Ratio of high to low (=1)* |
| U.S. | 666 | 76 | 92 | 208 | 31 | 6.7 | 87 | 209 | 19 | 11.0 |
| Alabama | 18 | 64 | 73 | 90 | 48 | 1.9 | 59 | 80 | 35 | 2.3 |
| Alaska | — | — | — | — | — | — | — | — | — | — |
| Arizona | 5 | 83 | 99 | 111 | 94 | 1.2 | 90 | 106 | 78 | 1.4 |
| Arkansas | 10 | 40 | 78 | 105 | 53 | 2.0 | 53 | 77 | 32 | 2.4 |
| California | 32 | 93 | 110 | 143 | 85 | 1.7 | 127 | 180 | 91 | 2.0 |
| Colorado | 10 | 81 | 98 | 145 | 69 | 2.1 | 101 | 145 | 66 | 2.2 |
| Connecticut | 7 | 97 | 102 | 120 | 81 | 1.5 | 102 | 132 | 70 | 1.9 |
| Delaware | 3 | 100 | 102 | 135 | 85 | 1.6 | 57 | 80 | 42 | 1.9 |
| District of Columbia | 1 | 100 | 116 | 116 | 116 | — | 97 | 97 | 97 | — |
| Florida | 22 | 85 | 97 | 124 | 67 | 1.9 | 107 | 134 | 76 | 1.8 |
| Georgia | 14 | 52 | 82 | 118 | 54 | 2.2 | 76 | 104 | 45 | 2.3 |
| Hawaii | 2 | 90 | 103 | 105 | 102 | 1.0 | 62 | 68 | 56 | 1.2 |
| Idaho | 3 | 30 | 87 | 95 | 79 | 1.2 | 67 | 80 | 57 | 1.4 |
| Illinois | 27 | 85 | 103 | 155 | 76 | 2.0 | 116 | 176 | 82 | 2.1 |
| Indiana | 32 | 73 | 92 | 117 | 71 | 1.6 | 89 | 122 | 64 | 1.9 |
| Iowa | 9 | 39 | 105 | 120 | 92 | 1.3 | 103 | 113 | 88 | 1.3 |
| Kansas | 7 | 46 | 103 | 120 | 57 | 2.1 | 108 | 144 | 53 | 2.7 |
| Kentucky | 11 | 44 | 91 | 114 | 47 | 2.4 | 69 | 94 | 27 | 3.5 |
| Louisiana | 16 | 65 | 109 | 176 | 63 | 2.8 | 66 | 102 | 33 | 3.1 |
| Maine | 3 | 42 | 87 | 94 | 80 | 1.2 | 74 | 84 | 64 | 1.3 |
| Maryland | 13 | 92 | 93 | 118 | 75 | 1.6 | 88 | 138 | 67 | 2.1 |
| Massachusetts | 7 | 68 | 88 | 133 | 69 | 1.9 | 90 | 129 | 66 | 2.0 |
| Michigan | 25 | 86 | 98 | 126 | 73 | 1.7 | 91 | 128 | 68 | 1.9 |
| Minnesota | 9 | 57 | 95 | 134 | 63 | 2.1 | 96 | 136 | 54 | 2.5 |
| Mississippi | 9 | 34 | 79 | 110 | 54 | 2.0 | 66 | 96 | 43 | 2.2 |

TABLE 4-8 (CONTINUED)

| State | Areas reported |  | State and local government sources |  |  |  | Local government sources |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  | Number | Percent of State population (1966) | Average[a] | Highest | Lowest | Ratio of high to low (=1) | Average[a] | Highest | Lowest | Ratio of high to low (=1) |
| Missouri | 12 | 64 | 91 | 130 | 59 | 2.2 | 94 | 145 | 62 | 2.3 |
| Montana | 3 | 31 | 111 | 127 | 95 | 1.3 | 114 | 141 | 84 | 1.7 |
| Nebraska | 4 | 41 | 109 | 130 | 78 | 1.7 | 138 | 166 | 109 | 1.5 |
| Nevada | 2 | 79 | 176 | 193 | 160 | 1.2 | 189 | 209 | 170 | 1.2 |
| New Hampshire | 3 | 48 | 100 | 107 | 89 | 1.2 | 113 | 120 | 104 | 1.2 |
| New Jersey | 21 | 100 | 101 | 144 | 73 | 2.0 | 124 | 195 | 81 | 2.4 |
| New Mexico | 5 | 51 | 115 | 188 | 87 | 2.2 | 65 | 109 | 44 | 2.5 |
| New York | 38 | 95 | 89 | 133 | 63 | 2.1 | 91 | 143 | 59 | 2.4 |
| North Carolina | 35 | 69 | 77 | 119 | 52 | 2.3 | 53 | 96 | 23 | 4.2 |
| North Dakota | 3 | 31 | 129 | 167 | 105 | 1.6 | 99 | 135 | 80 | 1.7 |
| Ohio | 47 | 87 | 86 | 119 | 58 | 2.1 | 97 | 144 | 62 | 2.3 |
| Oklahoma | 10 | 52 | 93 | 142 | 57 | 2.5 | 74 | 111 | 36 | 3.1 |
| Oregon | 10 | 74 | 102 | 143 | 82 | 1.7 | 100 | 131 | 84 | 1.6 |
| Pennsylvania | 41 | 91 | 79 | 112 | 59 | 1.9 | 75 | 110 | 48 | 2.3 |
| Rhode Island | 5 | 100 | 80 | 97 | 71 | 1.4 | 75 | 86 | 65 | 1.3 |
| South Carolina | 15 | 66 | 66 | 88 | 31 | 2.8 | 40 | 53 | 19 | 2.8 |
| South Dakota | 1 | 14 | 112 | 112 | 112 | — | 116 | 116 | 116 | — |
| Tennessee | 13 | 58 | 85 | 113 | 59 | 1.9 | 81 | 110 | 48 | 2.3 |
| Texas | 40 | 73 | 92 | 208 | 54 | 3.9 | 90 | 154 | 49 | 3.1 |
| Utah | 4 | 77 | 83 | 104 | 67 | 1.6 | 70 | 87 | 59 | 1.5 |
| Vermont | — | — | — | — | — | — | — | — | — | — |
| Virginia | 12 | 56 | 90 | 130 | 62 | 2.1 | 74 | 112 | 52 | 2.2 |
| Washington | 12 | 83 | 112 | 155 | 82 | 1.9 | 89 | 158 | 55 | 2.9 |
| West Virginia | 16 | 63 | 78 | 123 | 42 | 2.9 | 53 | 107 | 27 | 4.0 |
| Wisconsin | 18 | 66 | 93 | 115 | 81 | 1.4 | 76 | 97 | 54 | 1.8 |
| Wyoming | 1 | 19 | 121 | 121 | 121 | — | 109 | 109 | 109 | — |

[a] Unweighted mean of indexes computed for individual areas.

Source: Advisory Commission on Intergovernmental Relations, *Measuring the Fiscal Capacity and Effort of State and Local Areas* (Washington, D. C.: GPO, 1971), Table 14.

### TABLE 4-9

### INDEXES OF REVENUE EFFORT (ACTUAL REVENUE AS PERCENT OF REVENUE CAPACITY) FOR 666 SELECTED COUNTY AREAS, BY STATES: 1966–67

| *State* | *State and local governments* | | | | *Local governments—all revenue sources* | | | | *Local property taxes only* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Average*[a] | *Highest* | *Lowest* | *Ratio of high to low (=1)* | *Average*[a] | *Highest* | *Lowest* | *Ratio of high to low (=1)* | *Average*[a] | *Highest* | *Lowest* | *Ratio of high to low (=1)* |
| U.S. | 97 | 140 | 56 | 2.5 | 96 | 171 | 35 | 4.9 | 103 | 195 | 28 | 7.0 |
| Alabama | 97 | 112 | 85 | 1.3 | 95 | 127 | 64 | 2.0 | 112 | 195 | 44 | 4.4 |
| Alaska | — | — | — | — | — | — | — | — | — | — | — | — |
| Arizona | 112 | 121 | 108 | 1.1 | 117 | 140 | 108 | 1.3 | 134 | 162 | 112 | 1.4 |
| Arkansas | 90 | 100 | 81 | 1.2 | 94 | 127 | 69 | 1.8 | 116 | 162 | 70 | 2.3 |
| California | 110 | 133 | 90 | 1.5 | 114 | 154 | 81 | 1.9 | 119 | 178 | 78 | 2.3 |
| Colorado | 110 | 122 | 99 | 1.2 | 113 | 136 | 92 | 1.5 | 117 | 151 | 88 | 1.7 |
| Connecticut | 92 | 98 | 89 | 1.1 | 91 | 103 | 85 | 1.2 | 98 | 117 | 91 | 1.3 |
| Delaware | 99 | 103 | 95 | 1.1 | 92 | 106 | 75 | 1.4 | 100 | 135 | 59 | 2.3 |
| District of Columbia | 85 | 85 | 85 | — | 85 | 85 | 85 | — | 85 | 85 | 85 | — |
| Florida | 91 | 101 | 75 | 1.3 | 90 | 107 | 64 | 1.7 | 89 | 124 | 65 | 1.9 |
| Georgia | 98 | 111 | 92 | 1.2 | 98 | 125 | 85 | 1.5 | 121 | 195 | 80 | 2.4 |
| Hawaii | 123 | 125 | 120 | 1.0 | 120 | 128 | 111 | 1.2 | 107 | 137 | 78 | 1.8 |
| Idaho | 110 | 114 | 105 | 1.1 | 115 | 127 | 102 | 1.2 | 107 | 129 | 92 | 1.4 |
| Illinois | 86 | 94 | 71 | 1.3 | 86 | 100 | 61 | 1.6 | 91 | 114 | 69 | 1.7 |
| Indiana | 99 | 119 | 88 | 1.4 | 101 | 139 | 80 | 1.7 | 108 | 164 | 76 | 2.2 |
| Iowa | 102 | 109 | 90 | 1.2 | 99 | 114 | 76 | 1.5 | 101 | 118 | 72 | 1.6 |
| Kansas | 97 | 113 | 89 | 1.3 | 99 | 131 | 84 | 1.6 | 109 | 168 | 83 | 2.0 |
| Kentucky | 93 | 99 | 84 | 1.2 | 92 | 107 | 66 | 1.6 | 103 | 128 | 66 | 1.9 |
| Louisiana | 91 | 100 | 86 | 1.2 | 90 | 115 | 72 | 1.6 | 99 | 154 | 39 | 3.9 |
| Maine | 99 | 103 | 97 | 1.1 | 96 | 106 | 90 | 1.2 | 102 | 111 | 95 | 1.2 |
| Maryland | 97 | 111 | 84 | 1.3 | 92 | 122 | 64 | 1.9 | 95 | 130 | 66 | 2.0 |
| Massachusetts | 119 | 131 | 99 | 1.3 | 126 | 149 | 90 | 1.7 | 152 | 195 | 94 | 2.1 |
| Michigan | 98 | 118 | 84 | 1.4 | 95 | 140 | 70 | 2.0 | 96 | 166 | 64 | 2.6 |
| Minnesota | 116 | 140 | 108 | 1.3 | 118 | 171 | 101 | 1.7 | 120 | 192 | 95 | 2.0 |
| Mississippi | 99 | 106 | 87 | 1.2 | 94 | 110 | 66 | 1.7 | 114 | 154 | 81 | 1.9 |

TABLE 4-9 (CONTINUED)

| State | *State and local governments* | | | | *Local governments—all revenue sources* | | | | *Local property taxes only* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Average*[a] | *Highest* | *Lowest* | *Ratio of high to low (=1)* | *Average*[a] | *Highest* | *Lowest* | *Ratio of high to low (=1)* | *Average*[a] | *Highest* | *Lowest* | *Ratio of high to low (=1)* |
| Missouri | 89 | 94 | 83 | 1.1 | 88 | 98 | 75 | 1.3 | 96 | 108 | 85 | 1.3 |
| Montana | 94 | 99 | 85 | 1.2 | 94 | 103 | 78 | 1.3 | 107 | 130 | 80 | 1.6 |
| Nebraska | 79 | 88 | 57 | 1.5 | 76 | 89 | 45 | 2.0 | 88 | 110 | 48 | 2.3 |
| Nevada | 78 | 80 | 77 | 1.0 | 79 | 82 | 77 | 1.1 | 79 | 85 | 72 | 1.2 |
| New Hampshire | 84 | 87 | 78 | 1.1 | 83 | 89 | 73 | 1.2 | 82 | 92 | 71 | 1.3 |
| New Jersey | 94 | 110 | 84 | 1.3 | 95 | 122 | 79 | 1.5 | 94 | 135 | 75 | 1.8 |
| New Mexico | 97 | 101 | 86 | 1.2 | 100 | 115 | 64 | 1.8 | 110 | 146 | 41 | 3.6 |
| New York | 117 | 131 | 96 | 1.4 | 109 | 136 | 71 | 1.9 | 136 | 182 | 84 | 2.2 |
| North Carolina | 95 | 105 | 87 | 1.2 | 91 | 118 | 65 | 1.8 | 98 | 163 | 59 | 2.8 |
| North Dakota | 97 | 98 | 96 | 1.0 | 102 | 104 | 101 | 1.0 | 101 | 102 | 98 | 1.0 |
| Ohio | 85 | 97 | 70 | 1.4 | 84 | 106 | 59 | 1.8 | 85 | 111 | 59 | 1.9 |
| Oklahoma | 88 | 100 | 76 | 1.3 | 87 | 115 | 61 | 1.9 | 95 | 124 | 64 | 1.9 |
| Oregon | 99 | 104 | 89 | 1.2 | 97 | 108 | 79 | 1.4 | 96 | 106 | 73 | 1.5 |
| Pennsylvania | 95 | 108 | 87 | 1.2 | 90 | 118 | 74 | 1.6 | 86 | 121 | 66 | 1.8 |
| Rhode Island | 101 | 103 | 98 | 1.1 | 102 | 106 | 96 | 1.1 | 110 | 116 | 103 | 1.1 |
| South Carolina | 99 | 107 | 91 | 1.2 | 96 | 118 | 71 | 1.7 | 111 | 149 | 65 | 2.3 |
| South Dakota | 97 | 97 | 97 | — | 90 | 90 | 90 | — | 93 | 93 | 93 | — |
| Tennessee | 86 | 97 | 72 | 1.3 | 83 | 105 | 56 | 1.9 | 78 | 110 | 46 | 2.4 |
| Texas | 84 | 101 | 56 | 1.8 | 84 | 119 | 35 | 3.4 | 91 | 151 | 28 | 5.4 |
| Utah | 106 | 107 | 103 | 1.0 | 101 | 104 | 95 | 1.1 | 102 | 112 | 96 | 1.2 |
| Vermont | — | — | — | — | — | — | — | — | — | — | — | — |
| Virginia | 96 | 110 | 84 | 1.3 | 96 | 129 | 58 | 2.2 | 112 | 174 | 63 | 2.8 |
| Washington | 100 | 104 | 93 | 1.1 | 97 | 108 | 82 | 1.3 | 96 | 119 | 71 | 1.7 |
| West Virginia | 100 | 113 | 85 | 1.3 | 101 | 144 | 67 | 2.1 | 123 | 188 | 75 | 2.5 |
| Wisconsin | 114 | 133 | 92 | 1.4 | 114 | 166 | 71 | 2.3 | 115 | 178 | 59 | 3.0 |
| Wyoming | 83 | 83 | 83 | — | 80 | 80 | 80 | — | 73 | 73 | 73 | — |

[a] Unweighted means of ratios computed for individual areas.

Source: Advisory Commission on Intergovernmental Relations, *Measuring the Fiscal Capacity and Effort of State and Local Areas* (Washington, D.C.: GPO, 1971), Table 14.

for the 1961-62 and 1966-67 school years. Table 4-10 provides a summary of data for each of the five variables used as measures of fiscal capacity—property value per pupil in average daily membership (ADM), retail sales per capita, retail sales per household, effective buying income per capita, and effective buying income per household.

It was found that both retail sales and effective buying income were correlated negatively with market value of property per pupil in average daily membership, whether these measures were expressed on a per capita or a per household basis. The negative correlations were rather low, ranging from −.095 for retail sales per capita to −.125 for effective buying income per household. From these correlations it would appear that, for all practical purposes, no relationship existed between the market value of property per pupil in average daily membership and the other two measures of fiscal capacity. Effective buying income per household and effective buying income per capita were closely related, with a correlation of .958. The correlation between retail sales per capita and retail sales per household was .640, while the correlations between retail sales per capita and effective buying income per capita and per household were .622 and .589, respectively.

When the data concerning sources of revenue of the various categories of school districts were subjected to multivariate analyses of variance, in every instance it was found that the differences in fiscal capacity between the school district categories increased between 1962 and 1967. In no instance, however, did the market value of property contribute to the significant differences which were found. Effective buying income, measured on either a per capita or a per household basis, was the major source of variation in fiscal capacity among the seven categories of school districts.

In Table 4-11 are shown the mean school property tax rates for each of the seven categories of school districts for the school years 1961-62 and 1966-67. During the 1961-62 school year, the mean tax rate on true market value of property for the 220 school districts in the sample was 10.247 mills and ranged from a low of 7.768 mills in the major urban core city category to a high of 12.647 in the developing suburb category. The mean school tax rates in the two suburb categories were considerably higher than those in the other five categories. A one-way analysis of variance

TABLE 4-10

MEANS OF FIVE VARIABLES USED AS MEASURES OF THE FISCAL CAPACITY OF VARIOUS CATEGORIES OF SCHOOL DISTRICTS FOR THE SCHOOL YEARS 1961-62 AND 1966-67

| *Measure of Fiscal Capacity* | *Category A* | | *Category B* | | *Category C* | | *Category D* | | *Category E* | | *Category F* | | *Category G* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *'61-62* | *'66-67* | *'61-62* | *'66-67* | *'61-62* | *'66-67* | *'61-62* | *'66-67* | *'61-62* | *'66-67* | *'61-62* | *'66-67* | *'61-62* | *'66-67* |
| Market Value of pupil in ADM | $<br>30,999 | $<br>32,946 | $<br>24,827 | $<br>28,077 | $<br>24,253 | $<br>27,497 | $<br>26,965 | $<br>30,691 | $<br>25,911 | $<br>29,967 | $<br>22,397 | $<br>27,228 | $<br>21,648 | $<br>26,308 |
| Retail sales/ capita | 1,697 | 1,828 | 1,723 | 1,962 | 1,856 | 2,093 | 1,393 | 1,679 | 1,542 | 1,455 | 1,922 | 2,243 | 1,453 | 1,509 |
| Retail sales/ household | 5,314 | 5,651 | 5,684 | 7,263 | 6,008 | 6,680 | 4,827 | 5,863 | 5,386 | 5,272 | 6,230 | 7,293 | 6,280 | 5,116 |
| Effective buying income/ capita | 2,080 | 2,653 | 1,938 | 2,447 | 1,985 | 2,614 | 2,258 | 2,884 | 2,572 | 2,746 | 1,908 | 2,419 | 1,504 | 2,020 |
| Effective buying income/ household | 6,567 | 8,223 | 6,435 | 8,128 | 6,468 | 8,379 | 7,784 | 9,997 | 9,001 | 9,913 | 6,231 | 8,039 | 5,339 | 6,940 |
| Number in sample | 13 | | 34 | | 35 | | 35 | | 34 | | 35 | | 35 | |

Category A = Major Urban Core City
Category B = Minor Urban Core City
Category C = Independent City
Category D = Established Suburb
Category E = Developing Suburb
Category F = Small City
Category G = Small town or agriculture service center

Source: Richard A. Rossmiller, James A. Hale and Lloyd E. Frohreich. *Fiscal Capacity and Educational Finance,* National Educational Finance Project Special Study No. 10 (Madison, Wis.: The University of Wisconsin, 1970), Tables 3.15 and 3.40.

TABLE 4-11

SCHOOL PROPERTY TAX RATE (IN MILLS) FOR SEVEN CATEGORIES OF SCHOOL DISTRICTS, SCHOOL YEARS 1961–62 AND 1966–67

| | 1961–62 | | 1966–67 | |
|---|---|---|---|---|
| *Category* | *N* | *Mean* | *N* | *Mean* |
| Major urban core city | 13 | 7.768 | 13 | 8.971 |
| Minor urban core city | 35 | 10.103 | 35 | 11.596 |
| Independent city | 35 | 9.383 | 35 | 10.910 |
| Established suburb | 35 | 12.496 | 35 | 13.604 |
| Developing suburb | 32 | 12.647 | 34 | 13.892 |
| Small city | 35 | 8.870 | 35 | 9.890 |
| Small town | 35 | 9.174 | 35 | 9.984 |
| Grand Mean = | | 10.257 | | 11.479 |

Source: Richard A. Rossmiller, James A. Hale and Lloyd E. Frohreich, *Fiscal Capacity and Educational Finance*, National Educational Finance Project Special Study No. 10 (Madison, Wis.: The University of Wisconsin, 1970), Tables 3.22 and 3.47.

indicated that the differences in property tax rates among the seven types of districts were statistically significant—that is, they were not likely to have occurred by chance.

For the 1966-67 school year, the mean school tax rate on market value of property for the 222 districts included in the sample was 11.479 mills and ranged from a low of 9.871 mills in the major urban core city category to a high of 13.892 mills in the developing suburb category. The mean school tax rate in each of the two suburb categories again was considerably higher than it was in any of the other five district categories. A one-way analysis of variance indicated that in 1966-67 the differences between district categories were not statistically significant, i.e., they could be expected to occur by chance.

It will be noted from Table 4-10 that the major urban core city category had the highest mean true market value of property per pupil in ADM in both school years and that the mean value increased from $30,999 per pupil in 1961-62 to $32,946 per pupil in 1966-67. The small town category had the lowest mean value of property per pupil in ADM in both years, but showed a gain from $21,648 per pupil in 1961-62 to $26,308 per pupil in 1966-67. The established suburb category ranked second in property value per pupil in ADM and the developing suburb category ranked third in each of the two years.

In retail sales per capita, the small city category ranked first in both 1961-62 and 1966-67 with $1,922 and $2,243 per capita respectively, and was followed by the independent city category and the minor urban core city category in each of the two years. Retail sales per capita were lowest in two suburb categories and in the small town category in each of the two years.

In effective buying income per capita the rankings were practically identical in each of the two years. The two suburb categories ranked either first or second, the major urban core city ranked third, and the small town category ranked last.

Although three measures of the fiscal capacity of school districts have been discussed, it cannot be emphasized too strongly that, as a practical matter, school districts are virtually limited to the property tax. In many states school districts have no authority to tax anything other than property. And in the 22 states which authorized the use of nonproperty taxes by school districts in 1969, the amount of revenue derived from such taxes was generally small and the expense of collecting the taxes was relatively large.

Of even greater concern, however, is the fact that NEFP research indicates that revenue from nonproperty taxes levied by school districts does not have an equalizing effect.[15] In fact, nonproperty taxes are disequalizing in that those districts which have the greatest fiscal capacity as measured by their property tax base almost invariably obtain the largest amount of revenue from nonproperty taxes. Thus, the use of local nonproperty tax levies tends to *increase* the revenue disparities among school districts rather than to equalize their fiscal capacity.

In Table 4-12 are shown the mean amount of revenue per pupil in ADM received by school districts in each of seven categories during the 1961-62 and 1966-67 school years. It is worth noting that the established suburb, developing suburb, and small town categories fared substantially better than did the four city categories in the amount of revenue per pupil they obtained from state sources during both school years. In mean revenue per pupil from the local property tax the two suburb categories again ranked highest but here the small town category ranked lowest. School districts in the small town category raised only about one-half as much revenue per pupil from the local property tax as did school districts in the established suburb category. Revenue from state sources and revenue from local property tax consti-

TABLE 4-12

SOURCES OF REVENUE PER PUPIL IN AVERAGE DAILY MEMBERSHIP OF SEVEN CATEGORIES OF SCHOOL DISTRICTS IN A RANDOM SAMPLE OF DISTRICTS FROM EIGHT STATES*

| Revenue Source | Category A |  | Category B |  | Category C |  | Category D |  | Category E |  | Category F |  | Category G |  | All Districts |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | *Mean* | *S.D.* | *Mean* | *S.D.* | *Mean* | *S.D.* | *Mean* | *S.D.* | *Mean* | *S.D.* | *Mean* | *S.D.* | *Mean* | *S.D.* | *Mean* | *S.D.* |
| *1961–62 School Year* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. State | 156 | 40 | 177 | 48 | 167 | 73 | 246 | 111 | 240 | 111 | 182 | 72 | 254 | 104 | 208 | 94 |
| 2. Federal | 9 | 11 | 14 | 30 | 9 | 13 | 7 | 12 | 6 | 9 | 11 | 28 | 7 | 8 | 9 | 18 |
| 3. Other governmental agencies | 4 | 12 | 6 | 22 | 15 | 24 | 13 | 34 | 5 | 21 | 17 | 39 | 17 | 39 | 12 | 31 |
| 4. Property tax | 238 | 96 | 207 | 96 | 223 | 103 | 280 | 149 | 252 | 158 | 170 | 100 | 146 | 89 | 215 | 124 |
| 5. Other local taxes | 13 | 24 | 3 | 8 | 2 | 7 | 5 | 16 | 8 | 19 | 4 | 17 | 5 | 13 | 5 | 15 |
| 6. All other sources | 10 | 7 | 8 | 6 | 12 | 15 | 14 | 15 | 21 | 45 | 15 | 28 | 10 | 12 | 13 | 23 |
| *1966–67 School Year* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. State | 216 | 83 | 239 | 91 | 244 | 141 | 391 | 196 | 374 | 186 | 245 | 149 | 337 | 167 | 301 | 165 |
| 2. Federal | 63 | 36 | 54 | 32 | 50 | 50 | 28 | 21 | 33 | 41 | 50 | 41 | 50 | 40 | 46 | 39 |
| 3. Other governmental agencies | 15 | 44 | 11 | 32 | 10 | 19 | 13 | 40 | 4 | 11 | 21 | 51 | 27 | 56 | 15 | 40 |
| 4. Property tax | 308 | 174 | 264 | 109 | 287 | 135 | 368 | 203 | 342 | 196 | 229 | 125 | 188 | 112 | 282 | 162 |
| 5. Other local taxes | 22 | 42 | 3 | 9 | 3 | 8 | 7 | 21 | 12 | 25 | 7 | 18 | 6 | 13 | 7 | 19 |
| 6. All other sources | 18 | 17 | 17 | 37 | 8 | 8 | 16 | 10 | 18 | 20 | 11 | 12 | 8 | 12 | 14 | 19 |
|  | N = 13 |  | N = 34 |  | N = 35 |  | N = 35 |  | N = 34 |  | N = 35 |  | N = 35 |  | N = 221 |  |

Category A = Major Urban Core City
Category B = Minor Urban Core City
Category C = Independent City
Category D = Established Suburb
Category E = Developing Suburb
Category F = Small City
Category G = Small town or agriculture service center

*Florida, Kentucky, New York, North Dakota, Oregon, Texas, Utah and Wisconsin

Source: Richard A. Rossmiller, James A. Hale and Lloyd E. Frohreich, *Fiscal Capacity and Educational Finance*, National Educational Finance Project Special Study No. 10 (Madison, Wis.: The University of Wisconsin, 1970), Tables 3.1 and 3.26.

tuted by far the most important sources of revenue for school districts in all seven categories.

With regard to changes which occurred between 1962 and 1967, it will be noted that revenue from the state displaced revenue from the local property tax as the largest source of revenue for the total sample of districts. The increase in revenue from the state (from $208 to $301 per pupil in ADM) represented an increase of 45 percent during this five-year period. Small towns and suburbs fared best in terms of mean revenue per pupil from state sources. The small town category received the largest amount per pupil from state sources in 1962 ($254) and the two suburb categories received the largest amount per pupil from state sources in 1967 ($391 and $374). In both 1961-62 and 1966-67 the mean revenue per pupil from state sources received by school districts in the major urban core city category was only about one-half the mean revenue per pupil received by school districts in the two suburb categories.

The local property tax ranked first as a source of revenue in 1962 and second as a source of revenue in 1967. Mean revenue from the local property tax for the total sample of districts increased from $215 per pupil to $282 per pupil, an increase of 31 percent during the five-year period. In both years mean revenue per pupil from the local property tax was highest in the two suburb categories and in the major urban core city category. Revenue from federal sources moved from the fifth ranking source in 1962 to third ranking in 1967, increasing by over 400 percent (from $9 per pupil to $46 per pupil). Mean revenue per pupil from federal sources increased seven-fold in both the major urban core city and the small town categories and increased four-fold or more in the two suburb categories.

A number of statistically significant differences were found when the data with regard to sources of revenue of the seven categories of school districts were submitted to multivariate analyses of variance. Specifically, a significant difference was found between school districts in the minor urban core and independent city categories, the independent city and established suburb categories, and the developing suburb and small city categories. However, no significant differences were found between school districts in the major and minor urban core city categories, in the established and developing suburb categories, and in the small city and small town categories. Where a significant difference with regard to sources of revenue did exist, the difference was due primarily to either revenue from state sources or revenue from property taxes.

Education is only one of the many public services financed by units of local government and much has been heard in recent years about the problem of "municipal overburden." Consequently, analyses were made of the combined sources of revenue of school districts, and the municipality and county most closely associated with each school district, for the fiscal years 1962 and 1967. Six revenue sources were identified—state sources, intergovernmental sources, property taxes, other local taxes, other local sources, and utilities—and all revenues received by these three units of local government were combined and expressed on a per capita basis. The results of the analysis are shown in Table 4-13.

During 1962 revenue from property taxes was the leading source of revenue in each of the seven categories, ranging from a high of $124 per capita in the major urban core city category to a low of $83 per capita in the small city category. Revenue from the state was the second ranking revenue source in each category, ranging from a high of $71 per capita in the developing suburb category to a low of $41 per capita in the minor urban core city category. The relative importance of the other four revenue sources differed considerably from one category to another. For example, revenue from other governmental sources ranked sixth in importance in the major urban core city; fifth in the minor urban core city, independent city and small city categories; and third in the established suburb, developing suburb, and small town categories.

During 1967 revenue from property taxes again was the most important revenue source in each category, and revenue from the state again ranked second in importance in each category. Mean revenue from property taxes ranged from high of $178 per capita in the developing suburb category to a low of $106 per capita in the small city category. Mean revenue for the state ranged from a high of $110 per capita in the developing suburb category to a low of $55 per capita in the minor urban core city category.

No change occurred between 1962 and 1967 in the relative importance of the two major revenue sources—revenue from property taxes and revenue from the state. A substantial up-

## TABLE 4-13

### SOURCES OF PER CAPITA REVENUE OF SEVEN CATEGORIES OF A RANDOM SAMPLE OF SCHOOL DISTRICTS AND THE MUNICIPALITY AND COUNTY ASSOCIATED WITH EACH SCHOOL DISTRICT, 1961–62 AND 1966–67

| *Revenue Source* | *Category A Mean* | *Category A S.D.* | *Category B Mean* | *Category B S.D.* | *Category C Mean* | *Category C S.D.* | *Category D Mean* | *Category D S.D.* | *Category E Mean* | *Category E S.D.* | *Category F Mean* | *Category F S.D.* | *Category G Mean* | *Category G S.D.* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *1961–62* | | | | | | | | | | | | | | |
| 1. State | 44 | 27 | 41 | 20 | 51 | 24 | 58 | 24 | 71 | 26 | 43 | 18 | 64 | 25 |
| 2. Intergovernmental | 18 | 17 | 21 | 24 | 26 | 20 | 31 | 50 | 30 | 51 | 25 | 25 | 29 | 25 |
| 3. Property taxes | 124 | 55 | 106 | 79 | 114 | 51 | 117 | 60 | 124 | 55 | 83 | 42 | 91 | 77 |
| 4. Other local taxes | 19 | 21 | 9 | 11 | 10 | 10 | 4 | 5 | 5 | 5 | 6 | 8 | 7 | 8 |
| 5. Other local sources | 33 | 12 | 28 | 18 | 35 | 19 | 19 | 11 | 20 | 16 | 29 | 22 | 24 | 10 |
| 6. Utilities | 23 | 21 | 32 | 45 | 35 | 34 | 14 | 16 | 12 | 8 | 40 | 53 | 15 | 5 |
| *1966–67* | | | | | | | | | | | | | | |
| 1. State | 72 | 71 | 55 | 34 | 74 | 38 | 89 | 36 | 110 | 49 | 56 | 30 | 86 | 42 |
| 2. Intergovernmental | 47 | 44 | 36 | 34 | 43 | 25 | 39 | 20 | 46 | 35 | 41 | 34 | 51 | 30 |
| 3. Property taxes | 152 | 81 | 127 | 95 | 140 | 65 | 154 | 75 | 178 | 110 | 106 | 60 | 126 | 110 |
| 4. Other local taxes | 25 | 31 | 14 | 24 | 12 | 13 | 4 | 5 | 7 | 7 | 9 | 12 | 8 | 10 |
| 5. Other local sources | 47 | 23 | 41 | 25 | 46 | 24 | 30 | 18 | 27 | 10 | 32 | 16 | 35 | 15 |
| 6. Utilities | 28 | 24 | 41 | 58 | 45 | 48 | 19 | 21 | 18 | 14 | 46 | 58 | 28 | 13 |

NOTE: Expenditure for education includes capital outlay reported by school district; expenditure for all municipal and county functions are exclusive of capital outlay.

Category A = Major Urban Core City
Category B = Minor Urban Core City
Category C = Independent City
Category D = Established Suburb
Category E = Developing Suburb
Category F = Small City
Category G = Small Town

Source: Richard R. Rossmiller, James A. Hale and Lloyd E. Frohreich, *Fiscal Capacity and Educational Finance*, National Educational Finance Project Special Study No. 10 (Madison, Wis.: The University of Wisconsin, 1970), Tables 6.1 and 6.15.

ward change did occur, however, in the *amount* of revenue per capita obtained from each source. Revenue from other governmental sources became a more important source of revenue in 1967, especially in the major urban core city category. The relative importance of the other three revenue sources changed relatively little between 1962 and 1967, although the amount of revenue per capita obtained from each of them did increase rather substantially.

When the data regarding the combined sources of revenue of school districts, municipalities and counties were subjected to multivariate analyses of variance, the only instance in which a statistically significant difference in sources of revenue was not found was the comparison involving the established and the developing suburb categories. Revenue from state sources was the variable which most frequently contributed to the variation between the categories.

A similar analysis of purposes of expenditure by school districts and the municipality and county most closely associated with each school district revealed that expenditure for education was the largest component of expenditures in each of the seven categories in both 1962 and 1967. Mean per capita expenditures for such purposes as sewerage and welfare were generally quite similar in each category. Mean expenditure per capita for police protection was highest in the three large city categories, while mean expenditure per capita for highways was considerably higher in the suburb, small city and small town categories.

With regard to municipal overburden, it was found that the cities were spending somewhat more per capita for police and fire protection, parks, and housing and urban renewal than were the suburbs and small cities, but were spending somewhat less per capita for highways and education. No persuasive evidence of the existence of a general problem of "municipal overburden" was uncovered. Similarly, the large cities did not appear to have less fiscal capacity than the other categories, although their relative advantage in per capita fiscal capacity declined between 1962 and 1967.

The results of the NEFP studies suggest that if measures related to the market value of property per pupil in ADM are regarded as the proper criteria for judging a school district's fiscal capacity to support education, one is tempted to conclude that a fair amount of equity does exist between various categories of school districts, at least if the sample of school districts employed in the study is representative of the national picture. Rossmiller and his colleagues found no significant variation between the seven categories of school districts they studied when fiscal capacity was measured by the market value of property per pupil in average daily membership. Similarly, the variance in property tax rates between the categories was barely significant in 1962 and was not significant in 1967. In both 1962 and 1967, mean property tax rates were surprisingly similar in all district categories except the established suburb and the developing suburb, where they were about two mills higher than the next highest category. Revenue from property taxes per pupil in ADM was not a major contributor to the variations between the categories of school districts except in the comparison of school districts in the developing suburb category with those in the small city category. Revenue per capita from property taxes varied significantly only in the comparison of the independent city category with the established suburb category. When all sources of revenue of school districts, municipalities, and counties were combined and analyzed, revenue from property taxes varied significantly only in the comparison of the developing suburb and the small city categories. Thus, extraordinary fiscal inequities were not found between the categories of school districts compared if market value of property, property tax rates, or revenue from property taxes are used as criteria for determining whether or not equity in fiscal capacity and effort exists.

However, if indices of consumption and income—such as retail sales or effective buying income—are applied as the criteria for judging fiscal equity, then it is noteworthy that marked differences were found between several of the categories of school districts with regard to both their fiscal capacity and their sources of revenue. Effective buying income, expressed on either a per capita or a per household basis, was the major source of variation between the categories of school districts. Retail sales per capita also was an important source of variation between categories in several instances. Revenue from state sources was a major contributor to the variation between the school district categories as well as to the variation between categories in the analyses based on the combined sources of revenue of school districts, municipalities, and counties.

## Implications

A number of studies have established beyond dispute the causes of differences in fiscal capacity among the school districts of a state. Property, income and retail sales tend to be distributed somewhat unevenly within a state and, as we have noted, income and sales tend to be distributed more unevenly than does property. If one accepts the argument that all taxes ultimately must be paid from income, then heavy reliance on property taxes levied by local school districts to finance education inevitably will result in inequities in the fiscal capacity and effort of such districts because, as we have seen, there is not a close relationship between fiscal capacity as measured by property value per pupil in daily membership and fiscal capacity as measured by income per capita or per household.

The fact that education is a state function has been so well established by the courts that it is beyond argument. The state creates local school districts and delegates to them authority to operate educational programs and to levy taxes for the support of these programs. The delegation of taxing authority to smaller units of government almost inevitably will result in creating differences in fiscal capacity among such units of government. In general, the smaller the taxing units and the greater the taxing authority delegated to them, the more likely it is that variations in fiscal capacity will occur among such units.

As evidenced by the data presented in the studies cited in this chapter, the provision of some state grants-in-aid to local school districts (and other units of local government) may tend to perpetuate, or even aggravate, the existing inequities. A state aid system which recognizes only those variations in fiscal capacity which arise from the distribution of property within a state and ignores the variations in fiscal capacity which arise from the distribution of income within a state has virtually guaranteed the continuance of inequities in fiscal capacity and tax effort at the local level.

The states must recognize that they created local school districts and delegated to them taxing authority. Thus, the state is directly responsible for the inequities in fiscal capacity which exist among school districts. Furthermore, the state has it within its power to remove such inequities. The state created local school districts and it has full power to reorganize them in a manner which will mitigate or alleviate fiscal inequities. The state granted school districts taxing authority and this too can be modified. Even if a state chooses to retain its existing organizational arrangements for education, the state can reduce or remove inequities in fiscal capacity and effort among school districts by distributing state school aids in a manner which will offset the inequities which arise because of the existing organizational structure and taxing authority.

The obvious consequence of permitting the continued existence of marked disparities in fiscal capacity and effort among the school districts of a state is the continued existence of disparities in educational opportunity among districts. A district of limited fiscal capacity can match the educational programs provided by its more fortunate neighbors only if its citizens are willing to tax themselves at an extraordinarily high rate. Even then, such a district will do well to approach the state average. This situation is intolerable if one believes in equality of educational opportunity and if one recognizes the legal fact that education is, indeed, a state function. Only by tapping the total fiscal capacity of the state with a tax structure and allocation plan which integrates state and local efforts in a manner which assures to all school districts of the state reasonable equality of access to the total financial resources of the state can equity in fiscal capacity and effort for the support of education be attained.

Inequities in fiscal capacity and effort among the school districts of a state are a problem which can be solved by that state. However, inequities in fiscal capacity and effort among the states will require action by a larger taxing jurisdiction, for example, the federal government, if such disparities are to be reduced or eliminated.

## FOOTNOTES

1. Dick Netzer, *Economics of the Property Tax* (Washington, D.C.: Brookings, 1966), Chapter III.

2. *Ibid.*, p. 189.

3. Advisory Commission on Intergovernmental Relations, *State and Local Finances* (Washington, D. C.: GPO, 1969), p. 64.

4. Advisory Commission on Intergovernmental Relations, *State and Local Finances and Suggested Legislation* (Washington, D. C.: GPO, 1970), pp. 100-103.

5. *Ibid.*, p. 6.

6. Roe L. Johns and Oscar A. Hamilton, Jr., "Ability and Effort of the

States to Support the Public Schools," (Gainesville, Fla.: National Educational Finance Project, 1970), 15pp. (Mimeo)

7. John Due, "Alternative Tax Sources for Education," in *Economic Factors Affecting the Financing of Education*, eds. R. L. Johns, et al. (Gainesville, Florida: National Educational Finance Project, 1970), pp. 317-318.

8. *Ibid.*, pp. 307-308.

9. Advisory Commission on Intergovernmental Relations, *Measures of State and Local Fiscal Capacity and Tax Effort* (Washington, D. C., GPO, 1962).

10. Advisory Commission on Intergovernmental Relations, *Measuring the Fiscal Capacity and Effort of State and Local Areas* (Washington, D. C.: GPO, 1971).

11. *Ibid.*, p. 7.

12. *Ibid.*, pp. 10-20.

13. *Ibid.*, p. 24.

14. Richard A. Rossmiller, James A. Hale and Lloyd E. Frohreich, *Fiscal Capacity and Educational Finance: Variations Among States, School Districts and Municipalities*, NEFP Special Study No. 10 (Madison, Wis.: Department of Educational Administration, the University of Wisconsin, 1970).

15. Duane O. Moore, "Local Nonproperty Taxes for Schools", in *Status and Impact of Educational Finance Programs*, eds. R. L. Johns, Kern Alexander and Dewey H. Stollar (Gainesville, Fla.: National Educational Finance Project, 1971), pp. 209-221.

## CHAPTER 5

# *School District Organization*

Effective operation of a system of public education in a nation as large as the United States requires some type of structural or administrative arrangement. Instead of being superimposed through an educational bureaucracy from the state or federal levels of government, the responsibility for public education initially was placed upon interested citizens in local communities. As the nation expanded and citizens moved westward portions of land were set aside for school purposes, and the opening of schools became an integral part of the settling process.

Interest in state systems of education began to emerge when attention was drawn to the inequalities of educational opportunity within states and the variations in fiscal capacity among districts in a state. Graduation from high school replaced completion of the common school as the social norm, and school operation became too complex for local communities to continue without external assistance. These conditions contributed to the development of the great variety of governmental structures under which the public schools are currently operating.

The relative merits of the structure of the educational system in the United States are often a subject of controversy and debate, but the absence of any mention of education in the Federal Constitution has resulted in education becoming primarily the responsibility of the individual states. In practice, operational responsibility has been decentralized even further through the establishment of local school districts in 49 of the 50 states. Hawaii is the only state which has adopted a wholly state administered school system.

## LOCAL SCHOOL DISTRICTS

In their efforts to decentralize authority and responsibility for the operation of schools, the states have fostered the emergence of a wide variety of legally authorized and designated units. The local school district is the basic administrative unit most commonly established by the states to operate local schools. Under this arrangement a single administrative agency is responsible to the state government for designated educational functions. In a few states one local school district may be responsible for elementary schools, another for secondary schools, and yet another for junior or community college education—with a fourth agency having over-arching responsibility for other aspects of higher education. However, the crucial point is that the governing body of each local administrative unit is legally independent of each of the others, but the interdependence and need for communication and cooperation among them is self-evident. The creation of dual districts to operate elementary and secondary schools permits dual tax levies for operation and dual bonding power for school facilities, but it also contributes to duplication of services and increases the problems of communication and articulation. Statutes could be amended to encourage the merger of these dual districts into unit districts.

The differences among local school districts stagger the imagination of any observer. In terms of square miles in individual school districts, the area varies from less than one square mile to several thousand, and in terms of student population the number varies in size from less than ten students in some of the sparsely populated states to approximately one million students in New York City. The complexities are further evidenced by the concentration of a large number of students in a relatively few school districts; for example, the 150 school districts with enrollments exceeding 25,000 students enroll over 12 million students, which comprise over 30 percent of the total public school enrollment for the nation.

The post World War II years from 1950 to 1970 were marked by considerable interest in school district reorganization and consolidation. The effects of this trend are shown in the reduction in the number of school districts from 95,000 in 1948 to 40,000 in 1960 to less than 18,000 in 1970.[1]

The current interest in decentralization of large urban school districts may contribute to the emergence of another type of school district in the continuing quest for some structural arrangement which will provide a fiscal base adequate to support the schools, which has enrollment sufficient to provide both operational efficiency and quality in the educational program, and which will still permit parents a voice in operational decisions. Evidence that these are continuing concerns is provided by the town meetings in New England and later by the multiplicity of districts which were created in a number of states throughout the country.

Variations in governmental patterns among states are even more obvious when one considers that Illinois had about 12,000 school districts in 1940, but had reduced that number to about 1200 by 1970. Between 1948 and 1970 the number of school districts in Iowa was reduced from over 4700 to less than 500. Ohio had slightly less than 1600 districts in 1948, and had reduced the number to slightly over 600 by 1970. During the same period of time no appreciable reduction in the number of school districts was accomplished in the New England states; in fact, a net increase occurred in Connecticut, Massachusetts, and Rhode Island. The greatest amount of school district consolidation or reorganization occurred in the states comprising the old Northwest Territory.[2]

In 1948, 23 states had in excess of 1,000 school districts, 16 had in excess of 2,000 districts, and 7 had over 5,000 districts. By 1970, only 4 states had over 1,000 districts and none had over 2,000 districts. Over this 20 year period the number of school districts decreased in 34 states, increased in 9 states, and did not change in 5 states. This reduction is even more striking when one notes that the net loss was over 8,000 in one state, but that the highest net gain in any state was less than 60.[3]

Any consideration of the governance of American public education must recognize the basic differences between administrative units and attendance centers. An administrative unit exists for purposes of governance and usually encompasses one or more attendance centers while the term "attendance center" refers to the actual school. Not all administrative units operate schools within their boundaries; some of them transport students to another district which operates an attendance center or a school. Those administrative units which do not operate schools should be merged with an operating unit, for school districts have no educational reason to exist if they do not operate schools. This type of school district reorganization can take place without affecting existing attendance centers. Administrative units may be reorganized, merged, or subdivided, and the former schools may continue to operate in much the same fashion. Similarly, attendance centers may be consolidated, altered, or subdivided without altering the geographic boundaries of administrative units.

Traditionally, citizens have cherished the belief that schools were operating under "local control" when, in fact, the amount of local control and leeway that could be exercised was extremely limited. Local control has become virtually a myth with the proliferation of state statutes and regulations relating to curricular offerings, textbooks, certification of teachers, budgeting and accounting procedures, controls with regard to the expenditure of funds, and limitations on local tax levies. In practice, control of schools is local only to the extent that state legislatures and agencies choose to permit. The courts have been crystal clear in referring to local school districts as arms of the state, creatures of the state, or agencies with limited responsibilities and functions which exercise a portion of the power of the state.

## The Board of Education

Local boards of education serve two diverse functions in the American system of education. First, they have responsibility for adoption of policies under which the schools are to operate. This responsibility assures some balance in educational planning and decision-making and provides a means to broaden the participation of citizens in educational governance. Second, boards serve as arms or agents of the state with responsibility for carrying out legislative mandates in the operation of schools, but this role is further complicated by the additional responsibility to represent the educational interests of the local community.

In local school districts boards are normally composed of laymen elected by popular vote. The continuation of this historical pattern illustrates the American commitment to the concept that the people have the ability to manage their own schools and also is evidence of the public's continuing interest in assuming this responsibility. In the nineteenth century local boards were heavily involved in administrative functions, but as the operation of schools became more complex and time-demanding, school boards became less involved in routine operational concerns and moved toward the present pattern of relying upon the superintendent of schools to serve as the board's executive officer and be responsible for school operation. At the present time the contention is that the board of education should assume responsibility for policy making and legislative functions within the framework of state law and regulations, and should assign responsibility for executive functions to the superintendent of schools and his staff. In actual practice, however, this suggested allocation of functional responsibility is somewhat unrealistic, for sharp delineations cannot be drawn between legislative, policy making, and executive functions. For example, statutory requirements in some states dictate that the board must approve each expenditure of funds even after a detailed budget has been formally adopted.

Boards of education are found in nearly all local, intermediate, and state educational agencies. In each instance their functions and responsibilities are limited to those prescribed by statute and related implied and necessary powers, but the method of selection is very diverse. Popular election is the method most often used to select members of local boards of education, but this method of selecting board members is less well established for intermediate units or the state education agency. There is, however, general acceptance of the concept that there is the need and an appropriate role for this legislative and policy making body.

## INTERMEDIATE UNITS

As the second major structural component in the governance of education, intermediate units vary extensively among the several states and take on a variety of forms and functions. They range from the midwest's county superintendency where the function is largely record keeping and communication to the cooperative service agency which may encompass one or more counties and which is oriented toward providing certain educational services and programs more efficiently and economically than they can be provided by local school districts. Governing bodies for these agencies may be selected in a variety of ways, but the crucial issue may well be whether the agency is primarily responsible or responsive to the interests of the state educational agency or to the local districts located within its geographic area. The state education agency or the group of local districts upon which the intermediate agency is most dependent for resources or direction is likely to emerge as a stronger entity as a result of the activities of the intermediate agency.

The threat that an intermediate agency will replace the local school district is perceived differently in various states, for local school districts in several states are currently organized on a county unit basis which provides the pattern for the intermediate unit in other states. When the intermediate unit assumes responsibility for those functions normally assigned to the local district, it then in effect becomes the local school district, possibly providing impetus for further evolution through the formation of multi-county intermediate units to provide an even wider range of services and programs.

In some areas of the nation, the intermediate unit provides administrative and/or instructional services. For example, payroll accounting, maintenance of pupil records, curriculum development activities, employment of specialized personnel, and purchasing of supplies and equipment often can be provided more economically and efficiently by an intermediate unit, which serves several districts, than by the individual districts. However, intermediate districts should not be established by the legislature merely to prop up inadequate and inefficient local districts. Such districts should be merged or dissolved without delay or subterfuge. In the same fashion, politically powerful intermediate units should not be permitted to thwart progress in school district reorganization because their continued existence is threatened.

## STATE EDUCATION AGENCIES

Increased public interest in education and the shift in the base of financial support from the local to the state and federal levels have contributed, in recent years, to the growth of the state education agencies. These agencies provide various combinations of leadership, control, and service depending upon one's perspective, aspirations, and relationship to the agency. During the decade of the 1960's, substantial amounts of federal funds were appropriated to strengthen state educational agencies and these agencies were given responsibility for administering even larger federal appropriations which were to be expended by local school districts. An inevitable outgrowth of this increased flow of funds has been an enlargement of staff and an expansion of the operational functions being performed by state education agencies.

This third, and potentially most powerful, of the various administrative units for education is searching for its appropriate role in many states. As the state agency expands and moves from a disbursement and service orientation to a leadership and planning orientation, conflicts and problems inevitably will emerge as power bases shift and the focal points for educational policy decisions change. Legislative enactments mandating a statewide planning-programming-budgeting system and proposals for federal revenue sharing are but two examples of developments that could result in additional responsibilities being thrust upon state education agencies.

## STATE FINANCE PROGRAMS AND SCHOOL DISTRICT ORGANIZATION

Assessment of the interrelationships between state finance programs and school district organization requires a study of the relationships between equalization and school district size, wealth, tax rates, expenditures, and foundation program support. An analysis of these five factors revealed that wealth was the most significant element in predicting expenditures, with school tax rates being the next most significant. Size of school district and amount of foundation program aid did not appear to exert a significant influence upon expenditure patterns.[4]

Variations in expenditures were found in all states, and the existence of high or low level of expenditure per pupil did not necessarily result in a high or low level of equalization. A more detailed analysis did reveal that in seven states the foundation program was contributing additional revenues to districts with a low valuation of property per pupil. The importance of this pattern was directly related to the level of support provided through the foundation aid program.

In the same vein, one of the most disturbing findings of studies conducted by the NEFP is the failure of state financial support systems in their efforts to equalize the resources available to local districts. Low levels of equalization (in terms of the percentage that the foundation program is of total current expenditures) and the proliferation of categorical and special purpose aids have contributed to a situation in which local district wealth emerges as the primary factor in determining the level of expenditures in a local district.[5]

By forming regional education agencies or intermediate units, local districts can bring together a sufficient number of pupils so that it is feasible to provide specialized educational services for them. Various arrangements for intermediate units have been tried, but the objective has often been to seek an arrangement which will provide an adequate fiscal base, sufficient pupils, and some rationale for existence. The last reason is obviously the least defensible, and the first two may not be complementary. Hooker and Mueller have proposed the use of economic planning regions as logical geographical areas for intermediate units,[6] but the sheer size of these areas may require that they be subdivided in order to implement various educational services or programs.

## OBJECTIVES OF SCHOOL DISTRICT ORGANIZATION

When a state undertakes a comprehensive review of its governmental structure for education, consideration must be given to the existing situation and to the historical development of the current pattern of school district organization in that state. In many of the southeastern states, the county unit of civil government has also served as the primary reference point in the organization of schools; in the midwestern states the civil township was the primary unit, with the county functioning as an intermediate unit.

Various efforts have been made to state objectives or goals in school district organization, one of the more recent being The Great Plains School District Organization Project.[7] Previous research and writings on the subject of school district organization provided for support for the following five statements:

1. Each student should have the opportunity to participate in an educational program that will fully meet his educational needs.

2. The educational structure of the state should be organized in a manner that will provide an equalization of the expenditures for education throughout the state.
3. The educational structure of the state should be organized in a manner that will provide students with well-trained classroom teachers.
4. The educational structure of the state should be organized in a manner that will utilize efficiently the specialized and technical school personnel in the state.
5. The educational structure of the state should be organized in a manner that will provide the best use of funds expended for education.

## Educational Opportunity

The concept of educational opportunity is somewhat illusive, but various research studies and observations have indicated that access to educational programs and services is directly related to the size of the school district and the attendance unit which serve the student. For that reason the bulk of the following discussion will relate to organizational matters and to minimal and optimal student enrollment in school district attendance centers and administrative units.

The various attempts to arrive at a minimum acceptable size for attendance centers have resulted in some common agreement that elementary schools should have at least one section or classroom per grade and that secondary schools should have a graduating class of at least 100 students. Optimum sizes for elementary schools usually approximate 60-100 students per grade with secondary school optimums ranging from 700-1,500 students in a three- or four-year high school, depending upon the concentration of the population and the comprehensiveness of the educational program.[8]

Authorities generally agree that a school district should provide an educational program encompassing both elementary and secondary schools. The dual arrangements with separate elementary and high school districts are not considered desirable because of the duplicated administrative and service staffs and the communication and coordination problems between the elementary and secondary educational programs. Effective educational programs should not be restricted by multiple levels of administration which result in unnecessary complications for students, patrons, and school staff members.

Although many viewpoints have been expressed concerning the ideal size for a school district or an administrative unit, research has revealed that reasonable economies of scale cannot be secured until districts have at least 10,000 students. These same studies suggest that enrollments of 4,000-5,000 students might be defensible in sparsely populated areas. Even though these sizes may seem large in terms of the enrollments of some school districts, they should be construed as minimal rather than as optimal. Recommendations relating to optimal size often range from 20,000 to 50,000 pupils per administrative unit.[9]

The desirability of school district reorganization to eliminate the small unit is reasonably well accepted and is deemed justified on both educational and fiscal grounds. Workable solutions for resolving operational problems in very large school districts seem to be more evasive, but there is general agreement that constructive action is needed to reduce the communications problems and tensions which characterize these districts, as well as to provide for greater flexibility and diversification in instructional programs. Typical administrative arrangements may be used in efforts to resolve the former problems, but resolution of the latter will depend upon the ability of the district to recognize and respond to the need for differentiated instructional programs to serve subgroups of the total student population.

The number of students needed for an efficient school district operation is dependent upon the functions and services which are provided through the local administrative unit. In the absence of intermediate units, local districts must provide certain services and programs which in other settings could be furnished by an intermediate unit. The individual components of a state school system are interdependent and are in an intricate and sensitive balance as the various units interact to provide a full range of educational services and programs. If the role and responsibility of one component should be altered, that decision will have an impact upon each of the others. If a new level of educational agency (such as an intermediate unit) is introduced, the role, responsibilities, and functions of the local district and the state educational agency will be altered.

Recommendations relating to minimal desirable enrollment for all intermediate units will depend upon the relative sparsity of population in the area to be served, the extent to which local districts have been consolidated or reorganized, and the expectations which the state and local education agencies have for the unit. State statutes concerning minimum size have varied from 5,000 to 100,000 students.[10] Instead of using a minimum enrollment level as the criterion for forming an intermediate unit, a more logical approach would be to give first attention to the programs and services which are to be provided and then to develop an organizational pattern which will facilitate the provision of adequate sevices for all school districts in a given state. As was noted earlier, one of the primary considerations is whether the intermediate units are to be considered extensions of the state education agency or cooperative endeavors fostered by and for local school districts. If they are viewed as arms of the state educational agency, the size criterion will be of lesser importance than such factors as proximity to local districts and capacity to fulfill the designated functions. If they are cooperatives formed by local districts, efficiency criteria similar to those used in determining minimal and optimal sizes for local districts should be considered. However, primary attention should be given to the factors affecting the services and functions to be performed rather than to the number of students who happen to attend schools within the geographical area that constitutes a potential intermediate unit. In those states with large local districts, such as county units, intermediate units typically are not found. This experience suggests that roles and functions for intermediate units must be radically altered from traditional patterns if these units are to be feasible after the state has reorganized local school districts into adequate administrative units.

### Equalization of Expenditures and Resources

Inequalities in wealth among school districts and concentrations of fiscal resources within states serve to emphasize the futility of making precise statements relating to optimum district size in terms of either square miles or population. State support programs do make some headway in redressing this inequity, but their efforts typically have focused on equalizing at a minimum level rather than at an optimum or a maximum level. As the percentage of state aid increases, the relative importance of disparities in wealth decreases, but the resources available to some districts still will only support a minimal program.

Although there is increasing support for area financing on a multi-district basis, this may be only an intermediate step toward complete state support of local schools. The tax base could be coterminous with a standard metropolitan area, an economic planning unit, or a grouping of counties, whichever appears logical within a given state. Those states which have made significant strides in reducing the number of school districts have found that the wide disparities in available fiscal resources generally are reduced as the number of school districts within a state is reduced. The same result would occur if several operating districts were grouped into an area taxing unit, but retained their operational independence.

### Well-Trained Classroom Teachers

Research evidence supports the contention that districts of adequate size usually have teachers with higher levels of training, have these teachers assigned in their major areas of professional preparation, and have a higher rate of staff retention. The number of students is not the only factor which produces this staffing pattern. Increased curricular offerings, availability of instructional supplies and materials, and more favorable working conditions also are factors which contribute to a better staffing situation.

### Utilization of Specialized Personnel

The current supply and demand situation relative to teachers and other educational personnel does not reduce the need to strive for more effective utilization of available personnel. Studies of staff utilization have revealed excessively low numbers of pupils per teacher in small school districts. Smaller districts also have difficulty making the best use of the specialized training of teachers and other instructional personnel. A sufficient number of students must be available to justify the employment of specialized personnel, but there is the additional need for a professional team of sufficient size to provide a challenging and satisfying working environment and also permit a teacher to specialize in his professional field of interest.

**Efficient Expenditure of Funds**

Cost per pupil cannot be considered independent of the educational program and the objectives of the school district. With two-thirds or more of the typical school budget being expended for salaries, differences in pupil-teacher ratios, in the experience and training of teachers, and in the availability of specialized support personnel can easily contribute to wide differences in educational expenditures among local school districts. However, the research and literature in the field of school district organization indicates that small school districts and small schools, when compared with larger districts, are more costly to operate. State-wide analyses of the costs of educational programs have continued to support this contention.[11]

In suburbs and in areas with normal concentrations of population there seems to be little justification for a proliferation of small districts. In some of the sparsely populated states some adjustment in the minimum standards for pupil enrollment may be merited, with intermediate units assuming additional functions and responsibilities which can be shifted from the local district.

## GUIDELINES FOR REORGANIZATION AND SCHOOL FINANCE

Rather than relying upon one statute or several isolated statutes to expedite school district reorganization, a better approach is to develop a total legislative program or "package" which includes a sound reorganization procedure and financial incentives to encourage positive action by local districts. The following guidelines should be considered by state legislatures in their efforts to encourage school district reorganization:[12]

1. Current statutes and codes should be examined thoroughly to determine their effect upon school district reorganization. Only minor modification may be required, but those provisions should be repealed which retard or discourage reorganization or have become obsolete.
2. State and local reorganization committees should be established to provide organization and leadership for the reorganization process. Duties and responsibilities of these agencies and other groups or persons should be specifically defined in the statutes.

3. State-wide studies should be undertaken to determine the extent of the need for reorganization. Following this study, a master plan should be developed which gives consideration to state and local needs.

4. Legislation should be clear and easily understood by lay and professional people and should be easy to implement.

5. Regulations and criteria should be clearly defined. Criteria and minimum standards should be understood by all citizens and uniformly enforced.

6. On both the local and state level, maximum citizen involvement should be sought in the development of plans, criteria for reorganization, and proposed legislation.

7. Equitable voting procedures should be established with each person in the proposed unit having an equal vote. No group of voters should be discriminated against. The principle of "one-man-one vote" should prevail.

8. Reorganization should result in an equalization of fiscal resources insofar as this is geographically feasible.

9. The following fiscal provisions should be avoided if the goal is to encourage school district reorganization:

   a. Non-resident tuition aid which enables non-operating districts to send students to an operating district and levy a low local tax rate to operate their own schools.

   b. Aid to financially distressed districts in an amount sufficient to permit them to maintain school when they probably should be merged with another district.

   c. Minimum standards which are not enforced.

   d. Features which allow inadequate districts to circumvent the law and still receive state aid.

   e. Sparsity correction factors which perpetuate small, inadequate school districts.

10. The following incentives can be used to encourage school district reorganization:

   a. Optional provision for the new district to assume bonded debt and receive state support for retiring the debt incurred by component districts before reorganization.

   b. State aid for debt incurred for school construction needed as a result of reorganization.

   c. Aid to distressed districts which are viable, but financially troubled because of reorganization.

   d. Bonus aid for reorganized districts on a per-pupil basis.

e. Transportation aid designed to cover a high percentage of actual costs or to encourage a specific type or reorganization.

f. Provisions that guarantee aid from the foundation program and other state programs at a level no less than the total amount which would have been received by the component districts if they had remained independent.

11. State officials should exert pressure to see that impacted area funds are distributed through regular state aid channels. This would reduce the distortion in school district structure and provide for more effective operation of state equalization plans.

12. Incentive features should be maintained at a support level high enough to encourage reorganization. Dollar amounts should be based on realistic cost figures and should be increased as the economy demands.

13. Regional taxing units should not be used as a substitute for an appropriate level of state support; the purpose of regional taxing units is to achieve equality in local tax rates and available fiscal resources.

## ALTERNATIVE STRUCTURAL ARRANGEMENTS

The traditional patterns for administering schools have come under serious attack in recent years because of the changes in society associated with the myriad of social and cultural developments. Established institutions have a tendency to become rigid and unresponsive to external stimuli; this is counter to the general societal thrust for increased citizen involvement and participation, as well as to the movement toward greater utilization of scientific and technological developments. In the following discussion, several alternative structures are discussed as means for expanding and improving educational opportunities and programs.

### Regional Service Units

Improvements in transportation and communication have negated most of the need for the county intermediate units which are still found in several states. The increased demand for educational services suggests the need to form other types of intermediate units which could provide such services as data processing for business and pupil personnel functions, or could operate vocational and technical schools. This type of intermediate unit does not have supervisory responsibilities; it focuses on providing needed services to constituent school districts. A second and related option is for the state education agency to decentralize its activities and establish satellite agencies on a regional basis so that its personnel and services will be more accessible.

An intriguing alternative involves five different settings for educational action—the classroom, the school building, the local school district, the intermediate unit, and the state education agency. Functions could be grouped under the broad categories of operational, developmental, and planning; this design calls for decisions relating to a specific function to be made as close to the point of performance as possible. The key considerations are that (1) a function is to be located at the level at which it can best be performed and (2) responsibility for the performance of a function may shift to another level as conditions change. The incidence, need, and availability of resources are the primary factors to be considered in determining which level would assume responsibility for performing a given function. Recognizing the differences which exist among school districts and the changes which are taking place in society, this "open system" approach recognizes that some local districts should assume responsibility for performing certain functions and that other districts might more appropriately rely upon an intermediate agency or even the state agency for performance of the same function. Fiscal economies should accrue through shared information and also through decisions that certain activities would only be performed at a limited number of sites in a given state. An underlying theme is the built-in emphasis on increased statewide coordination and leadership in decision-making.

### Urban Metropolitan Districts

The rapid growth of suburban areas around large cities has focused attention on the inequities associated with concentrations of wealth in one area and concentrations of pupils in another. The geographic configurations of both suburban and urban school districts often predate any consideration of population growth patterns or concentrations of taxable wealth. In many urban areas educational planning is unnecessarily hampered by the proliferation of districts. In an effort to correct some of these inequities, a metropolitan governmental structure for schools has been adopted in some places. One of the earliest experiences with metropolitan government was in Toronto. The formation of that program has spurred interest in the United States.

In the metropolitan areas of most American cities, the logistical and political problems associated with forming a metropolitan governmental structure would be most formidable because of the proliferation of school districts in the suburbs and the multistate character of many metropolitan areas. Notable exceptions are found in those states where the pattern for local districts involves county units; in these states the transition undoubtedly would be easier because a smaller number of agencies would be affected. The situation is further enhanced because of the reduced diversity in social and economic characteristics resulting from the larger unit. Cultural differences within the core city and within the large suburb will, in all likelihood, be greater than the "mean" differences between the city and its suburbs.

Recognizing reasonable size limits in terms of population and square miles, the rationale for the formation of urban metropolitan districts is at least three fold. Educational planning for the area is made easier by the consolidation of school districts, for it can be focused on the entire area rather than being unduly influenced by minor shifts in the population. Through this type of merger, school sites can be selected more objectively because of the elimination of district lines and the increased availability of land. Transportation problems should also be reduced because of the greater flexibility in determining the attendance boundaries for individual schools.

Specialized educational personnel and services can be made available to the entire area rather than being restricted to the wealthy or very large school districts. The critical mass of students will permit the district to provide both human and technological services at a higher level of economic efficiency.

Under this structural arrangement, students in the metropolitan area will have access to the same relative quality of educational program. They will not be short-changed because of the large variations in fiscal resources among districts which result from concentrations of commercial and/or industrial activity in one district and concentrations of students in another. The increased educational expenditures associated with rapid growth in one small area can be spread over the total area rather than imposing a very heavy tax burden upon the growing area. Racial integration could be accelerated through the use of busing to reduce *de facto* segregation. However, likelihood of a mass movement toward formation of urban metropolitan districts is minimal because of the problems associated with administering large school districts and because of the legal complications related to a school district with territory in more than one state.

### Decentralized Administration in Urban Districts

The same districts which embrace the concept of forming an urban metropolitan school district in an attempt to solve their fiscal and planning problems will, in all likelihood, find themselves confronted with equally perplexing operational problems. The interactive impact of teacher militancy, citizen interest in involvement in educational decisions, and questions concerning the efficacy of current educational practices has generated considerable interest in some type of decentralized approach to the administration of urban school districts. When student enrollments exceed 50,000 and result in the need to operate several senior high schools, communication problems seem to mount and the need for divergence in educational programs among schools becomes evident.

Decentralization of operational responsibility in urban schools is complicated by the degree to which commensurate authority can also be decentralized. Master contracts with teachers' organizations often contain clauses pertaining to teacher transfers and to a multitude of working conditions. In effect, teachers might have a centralized contract in a decentralized setting; the potential for conflict is self-evident. Concern is often expressed that staffing practices will tend toward one of two extremes—paternalism and patronage or the unrestricted freedom of decentralized boards to hire and fire at will.

A number of benefits can accrue through decentralization if educational program variations are permitted on a sub-district basis and if administration of the budget also is decentralized. The most obvious benefits are the shortened lines of communication and the reduction of the feeling of isolation which characterizes many of the schools or attendance units in large urban school districts.

The discussion, thus far, has focused on the role of the administrator in the sub-district, but citizens in many sub-district settings are seeking ways in which they can participate actively in decision-making. Typically, their initial interests are in decisions concerning personnel matters and the educational program. The problems associated with their participation in these decisions are evident when one considers the state laws and regulations concerning educational programs and the restrictions on personnel decisions imposed through master contracts with teachers. However, the legitimacy of the push for increased lay involvement in large urban districts is obvious when one considers the fact that the number of students in some urban school districts exceeds the total number found in some states, or even in several states. The challenges are (1) to develop an appropriate definition of the scope of authority granted to the sub-district lay advisory groups or sub-district boards and (2) to provide some means through which opportunities for responsible citizen participation can be assured in the selection of members of such bodies. The potential benefits of greater citizen involvement may be overshadowed by problems if these two goals are not achieved.

Fiscal equalization for the school districts within a state is facilitated by the existence of the larger unit, but the need for internal fiscal equalization may be neglected because of a desire to provide "unequals with equal treatment." Programmatic requirements will vary significantly among the schools because of the different educational needs of students in various attendance units. This potential problem can be resolved through the use of a decentralized budgeting system which will make it possible for one school to receive more funds per pupil or more personnel than another school because of its demonstrated need for a different type of educational program.

Administrative procedures in large urban school districts can be decentralized to provide for a distribution of operational authority and responsibility. A constellation of schools would provide the basis for the sub-district; one or more high schools with their associated elementary and middle schools or junior high schools could comprise the unit. This feeder school system would facilitate the development of close working relationships in curriculum development and the resolution of operational problems. The number of decisions made at the sub-district level should be minimal, for the primary responsibility for determination of operational procedures would reside at the school level. Central responsibilities would include establishing district-wide policies, evaluating the progress and needs of the district, obtaining and allocating fiscal resources for operation, stimulating research and development activities on a sub-district and district basis, representing and coordinating district interests with other governmental agencies, reviewing appeals from sub-districts, and protecting the employment rights of employees.

Other potential gains under this type of decentralized arrangement would encompass greater citizen involvement in determination of operational policies, allocation of decision-making powers to personnel who actually conduct the operations, and increased opportunities for parent and citizen participation in decisions affecting the schools serving their area, increased opportunities for school employees to exercise professional judgment in educational decisions, and greater potential for development of innovative and cooperative educational programs.

### Inter-District Cooperation

Possibilities for cooperative action by local school districts are many and varied, but the limited powers of governing boards may preclude activities which could be undertaken through legal entities such as intermediate units or regional service units. Through the informal sharing of information and materials or through joint membership in school study councils, districts have the opportunity to work together. More formal cooperative action may be taken through joint purchasing or even joint employment of personnel. Such arrangements may not be satisfactory over an extended period of time because of their heavy dependence upon the informal relationships between the school officials in the participating districts, but they may provide an opportunity for exploratory activities which can be formalized at a later date.

### Contracted Services

Local school districts have a long history of contracting with private agencies for various supporting services; one of the most obvious examples is in the field of public transportation. In rural districts there often are multiple contracts with individual owners and drivers of single buses; in suburban and urban districts the contract may be with a single firm which operates a fleet of buses and provides complete transportation services. Local districts have also entered into contracts for custodial services, maintenance services, and food services.

These examples illustrate the precedent for local districts entering into performance contracts with private firms which agree to provide instruction to pupils. The major difference between this recent activity and the previous contracts is that the earlier contractors agreed to provide various support services rather than provide actual instruction. In the scattered districts which have entered into performance contracts, the trend appears to be that the contractor will be paid only if the pupils progress at a predetermined rate. The impact that performance contracts will have upon the organizational structure of the public schools is a matter of lively discussion in many quarters, but at the present time most statements are pure conjecture because of the limited experience with these programs. If performance contracts should become the rule rather than the exception, traditional state controls will need to be reviewed and possibly revised, and modifications in some state support programs will be required to accommodate the diversity of staffing patterns found in these programs.

## INTERACTIVE EFFECT OF FUNDING ARRANGEMENTS

The historical contention in school finance has been that the principal locus of financial support will also be the principal locus of control over schools. Research has not validated this contention, but funding decisions will alter the roles to be assumed by the various levels of educational governance. In the following discussion illustrations will be presented of the way that various funding decisions may affect the role of different agencies.

### Federal Aid

For the purposes of this discussion, it is assumed that the federal government will continue to perform its traditional data gathering, initiation and development of special programs, and dissemination roles and that these roles will not change appreciably irrespective of the level of federal support for education. The possibility of an expansion of these roles is inherent, but it is assumed that these decisions will be made independent of those relating to support for school operation. In the subsequent discussion in this section, federal aid has been grouped into two broad classifications—general aid and categorical aid.

*General Aid.* Under a federal support program involving federal aid, the principal role of the federal agency would be disbursement with state and local agencies having the responsibility for expending the funds in accordance with approved state plans. The policing or regulatory function should be minimal provided that decentralized decision-making is maintained.

In view of the state's legal responsibility for education, the state education agency undoubtedly would be actively involved in administration of a general program of federal aid. A federal block grant or general aid program could be administered through the state with a minimum of federal control through guidelines, regulations, and approved state plans. However, each of these administrative devices can also be used as a means to "control" the manner in which funds are expended in the local school district. The question of control or lack of control will only be answered through the statutes which authorize the expenditure of funds and the procedures used to administer the program.

*Categorical Aid.* Under a categorical aid program, the federal policing or regulatory responsibility will, in all likelihood, be greater because of the increased detail of the regulations and guidelines which must be prepared to protect the specific purpose of the funding. Even though the program may be intended to achieve a high degree of decentralization, the typical decision to create a staff to administer each "category" will contribute to the emergence of a specialized administrative agency. Rather than being cast in the role of a policy-maker, as in the previous example, a federal program of categorical aid is likely to result in the state serving more as transmitter and interpreter of federal guidelines and regulations with a significant reduction in its discretionary power.

### State Aid

Various regulatory responsibilities are a direct consequence of state authority and responsibility for education; therefore, the task of isolating those directly related to school finance is virtually impossible. Statutes and regulations vary considerably among the several states, but most states have some legal mechanism through which school budgets are reviewed and fiscal accountability is assured by audits of expenditures. As a result of the adoption of standardized accounting procedures, comparable data are available at the state level for research and dissemination purposes.

As state funds increase in quantity, typically the relative differences among local districts in available fiscal resources will be reduced. Poorer districts will have additional fiscal resources, and richer districts may find that their relative financial advantage has decreased, but access to financial resources will have become more equal among the districts in the state. The relative latitude of local school officials will be increased if an adequate amount of state funds are distributed through general aid channels which recognize differences among districts in unit costs of education as well as taxpaying ability. In Chapter 10 of this Volume various models of state general aid are analyzed. Some of those models are far more satisfactory than others.

Categorical grants should be held to a minimum because they increase the difficulties of budgeting and accounting and may also distort educational priorities.

*Full state funding.* The lack of extensive experience with full state funding of local school operations complicates the task of projecting the problems which might be associated with administration of such a program; however, certain types of problems can be predicted to be associated with this approach.

One of the principal problems resulting from full state funding would appear to be the lack of budgetary flexibility in terms of the ability to project contingencies or unanticipated emergencies and the capacity to accommodate necessary differences in funds required to support educational programs both within and among school attendance units. Emergencies could be resolved by maintaining a contingency fund at the state level which would be under the control of the state board of education and administered through the state education agency. Routine maintenance activities could be scheduled in a normal budget cycle, but permitting each district to maintain a contingency fund adequate for all emergencies would be fiscally unsound. Reasonably accurate predictions could be made concerning the size of the contingency fund which would be required for the entire state over a given period of time.

If a full state funding program should be adopted, a major challenge would be to develop an equitable budgeting system which would recognize the differences in costs associated with various educational programs and services as well as with different areas of the state. Allocation of funds on a flat per pupil basis would have a depressing effect upon educational programs. The budgeting and allocation process should recognize the costs associated with various educational programs, such as vocational education, compensatory education and special education, as well as the unique costs associated with sparsity of population and similar demographic factors. Considerable progress could be made toward the alleviation of these problems through the use of either a cost differential approach or programmatic budgeting in the allocation of funds.

A second problem associated with full state funding is related to the fiscal and budgetary controls which would be required to assure that local school operating units expend funds in accordance with their approved budgets. This problem would not be severe in those states which have established agencies with responsibility for approving budgets and conducting fiscal audits. The likelihood of mismanagement would be reduced if local officials were declared personally responsible for mismanagement or misapplication of funds.

Many observers contend that one of the great strengths of American public education has been the financial and programmatic leeway accorded local districts. Other observers contend that a major defect of this policy is that it disequalizes educational opportunity. Full state funding would obviously require a program approximately uniform in equality throughout the state. Local school districts could be permitted with supplementary state funding to develop innovative or experimental educational programs on a trial basis, but they could not be permitted to levy taxes to obtain revenues beyond the "state program" for this would be in direct contradiction to the basic intent of the program. Chapters 8, 9 and 10 of this Volume present some evidence that indicates it would be sound public policy to provide 75 to 90 percent of public school revenue from state and federal sources. However, it seems that innovation and desirable change would be promoted if school districts are left with some local tax leeway. Perhaps the best policy would be to provide sufficient local leeway to permit needed local experimentation without substantially disequalizing educational opportunity and also to provide some supplementary state funds for research and development.

### Local Support

Irrespective of the source of funds, current trends indicate that responsibility for operating schools will continue to reside at the local level. In large cities the concept of "local" may mean decentralization to provide for increased citizen involvement at a level closer to the local school, for current thought in both practice and theory supports the view that operational decisions should be made as close to their point of implementation as possible.

Public reaction to the property tax and the general resistance to locally levied income and sales taxes suggest that the relative amount of financial support provided by the local school district will not increase significantly. As the percentage of funds coming from the state and federal levels increases, the relative disparity in fiscal flexibility among local districts will undoubtedly decrease. In the district with above average wealth, the challenge to plan for effective utilization of funds will remain, but the opportunity to call for additional resources will not be available. In the district with average or below average wealth, financial flexibility in terms of available resources will remain constant or be increased.

Rather than being expressed in a fiscal fashion, local support might more appropriately be expressed in terms of human and conceptual capital. Planning, management, and implementation skills may become the primary resources which will be provided by the local school district.

## FEDERAL-STATE-LOCAL LEADERSHIP BALANCE

Traditional concepts relative to strict allocation of powers and responsibilities to various levels of government appear to be outdated in terms of the contemporary challenges and opportunities which confront educational institutions. Efforts to expand the role of state and federal educational agencies have often been op-posed on the grounds that only a fixed amount of power existed, and thus the reallocation would result in a reduction of the power of the local school district. Experience with federally supported programs designed to deal with social and economic deprivation has demonstrated that the increased involvement of the federal government has contributed to an increase in power of the state and local governmental units to deal with these problems. Under this concept, rather than being viewed as encroachment, federal interest in an educational problem area would be welcomed, for federal intervention should also enhance the power and the opportunities available to state and local units as they deal with the problems. The problem entailed in full acceptance of this concept is that the federal interest has not always coincided completely with state and local interests, resulting in either a diversion of state and local interests and effort or a rejection of the federal program when the three levels of government are not in agreement.

The challenge is for each of the three levels of governance to develop a strong, well-staffed, and capable educational agency so that the three levels may interact in a triad. This would maximize the opportunities for desirable changes and innovation, and also would encourage the further professional growth and development of the staffs at each of the three levels.

Rather than being viewed as a local and/or state responsibility, the financing of education has come to be viewed as a local-state-federal partnership. The level of federal participation has increased significantly since the enactment of the National Defense Education Act in 1958, and the level of participation must continue to increase if local districts are to have an adequate level of fiscal resources without an unequal tax burden. A state legislature cannot abrogate its responsibility for financing education, for each state, through its constitution, has assumed responsibility for establishing and maintaining an educational system. State legislatures have considerable leeway in making decisions relative to the type of tax and level of government at which the tax is to be levied and collected, but responsibility for providing revenues for school operation still resides with the state legislature.

Even though the federal government has restricted its role in supporting educational programs to a variety of categorical aids, the federal government does have an interest in seeing to it that equal educational opportunities are provided to all students. The relative importance of this role has been enhanced with the increasing urbanization and mobility of the American society. Only the federal government, unhampered by state boundaries and local jurisdictions, possesses the taxing flexibility and resources needed to provide an equitable distribution of funds among the several states and their operating school districts.

### Federal Responsibilities

The challenge for the federal government is to move beyond its historical programs of research and development activities, data gathering and dissemination, and such narrow programs as aid for "impacted areas" and operation of Indian schools. A more worthy program is for the federal government to pursue the goal of guaranteeing equal educational opportunity. This goal encompasses the assumption of a national leadership role, stimulation of research and innovation, promotion of expanded professional experiences at the state and local levels, and guaranteed provision of equal access to educational programs and fiscal resources.

A long-term issue in intergovernmental relations in education is the relative balance between state and federal roles in such areas as educational goal setting and the control or actual operation of public schools and related agencies.

### State Responsibilities

Plenary responsibility for all aspects of education resides with the state, and the state through the legislature and various state agencies is responsible for the operation of educational programs within the state. Functional responsibility for the day-to-day operation of schools may be decentralized to the local districts, but ultimate accountability still resides at the state level.

State educational agencies typically have some degree of executive, judicial, and legislative powers. Although this may appear to contradict the traditional separation of powers, state legislatures have continued to treat the state education agency as an entity independent of the executive branch of government. Rather than placing state education agencies in the executive branch under the governor, the trend has been to create semi-independent agencies with their own boards which exercise the power to approve or advise on rule-making and administrative procedures.

The potential power of the state education agency and the importance of the role of the state board cannot be overemphasized, for a state system of education is so complex that the legislature cannot prescribe in detail all of the policies and procedures which will be required to operate schools.

In enacting statutes pertaining to the fiscal support of schools, state legislatures have a three fold responsibility: (1) to assure that each district has sufficient funds to operate an educational program that adequately meets its educational needs, (2) to develop the state financing program so that the tax burden is equalized among districts, and (3) to provide local districts with some incentive to search for ways to improve the process of education. In addition, sufficient funds must be provided to staff and maintain an effective state education agency.

Beyond the responsibility to provide adequate finances for local schools, the state has primary responsibility for administrative, regulatory, and leadership functions such as the following:

1. Administrative functions
    a. Collect operational data and information from local districts.
    b. Disburse funds.
    c. Issue teacher certificates.
2. Regulatory functions
    a. Develop and enforce minimum standards for schools.
    b. Visit and evaluate operating programs in local schools.
    c. Inspect schools to assure a healthy environment.
    d. Audit school financial and pupil personnel records to assure compliance with regulations.
3. Leadership functions
    a. Coordinate the operations of state and local educational agencies.
    b. Implement planning activities focusing on state and local educational needs.
    c. Develop and implement a defensible plan for school district organization in the state.
    d. Involve representative groups and individuals in planning activities.
    e. Design and implement a research program to support the state's planning activities and to assist local school districts.

f. Encourage research and experimentation in local school districts.
g. Promote and evaluate educational innovations.
h. Develop and coordinate a consultative service program utilizing resource personnel from the state education agency, intermediate units, local school districts, and institutions of higher learning.
i. Implement a communications program to keep the public informed about education and to encourage a free exchange of information and communication about areas of concern.
j. Provide assistance to local school districts in planning, conducting, and evaluating in-service programs for their personnel.

### Intermediate Unit Responsibilities

A detailed list of responsibilities for intermediate units or regional service agencies will not be presented, for the role of these agencies is truly evolutionary in terms of the tasks and functions being performed by local districts and the state educational agency and in terms of the statutes which provide for the creation of an intermediate unit. In some states existing intermediate units can no longer be justified because of progress in school district reorganization. They must be reconceptualized on the basis of administrative convenience or efficiency to provide services needed by local school districts or the state education agency.

### Local Responsibilities

Local school districts serve as arms of the state legislature in the structural organization for school operation in all states except Hawaii. Patterns of school organization vary extensively among states, and a constant process of evolution has kept districts in a state of change as schools have been consolidated or districts have been reorganized. However, the challenge to develop and conduct educational programs has continued to be the responsibility of the local school district. Placing major responsibility for this function at the local district level does not suggest an abdication of state responsibility, but permits flexibility in terms of local situations and also casts the federal and state agencies in a leadership and service role.

As the basic operational unit for schools, local school districts must look beyond day-to-day operational concerns and address themselves to long-range planning in terms of the educational program as well as related fiscal matters. The complexity of governmental units and services points to the necessity for cooperation and joint planning among various governmental units. A diverse group of services and activities have become an integral and vital part of a sound educational program; the challenge to local school officials is to identify those which can best be provided by local districts.

From the local district must also come the basic information used in assessment and accountability efforts. Through the analysis of these data alternative delivery systems or processes may be identified which contribute to improved educational opportunities and greater efficiency in the use of the resources devoted to education.

FOOTNOTES

1. Clifford P. Hooker and Van D. Mueller, *The Relationship of School District Reorganization to State Aid Distribution Systems, Part II*, National Educational Finance Project, Special Study No. 11, Minneapolis, Minnesota, 1970, pp. 11-60; *Estimates of School Statistics*, Research Division-National Education Association, Research Report 1970-R15, Washington, D. C., 1970, p. 26.
2. Hooker and Mueller, *op. cit.*
3. *Ibid.*, *Estimates of School Statistics, op. cit.*
4. Hooker and Mueller, *op. cit.*, pp. 177-9.
5. *Ibid.*, p. 178.
6. *Ibid.*, p. 183.
7. William E. Inman, "Size and District Organization" in *Planning for School District Organization*, Selected Position Papers, The Great Plains School District Organization Project, Lincoln, Nebraska; The State Department of Education, 1968, pp. 160-5.
8. *Ibid.*, pp. 171-2.
9. *Ibid.*, p. 173; Ralph D. Purdy, *Guidelines for School District Organization*, A Project Report, Lincoln, Nebraska: The State Department of Education, 1968, pp. 124-5.
10. Inman, *op. cit.*, pp. 173-4.
11. *Ibid.*, pp. 163-5.
12. Hooker and Mueller, *op. cit.*, pp. 184-6.

## CHAPTER 6

# *Measuring Educational Needs and Costs*

The first quarter of this century was noted for the development of budgeting procedures for two major categories of expenditures (1) current operating expenses and (2) capital outlay and debt service expenses. The cost-unit concept, based on the pupil and the teacher, emerged slowly in conjunction with the idea of equalization of educational opportunity.

By mid-century a widely adopted procedure for implementing the equalization concept was the encompassing pupil (and instructional) unit, weighted for demographic factors associated with population sparsity. In a few states the beginnings of the present-day approach to program cost analysis appeared in methods that broke down cost units into broad programs and service components.

State and federal categorical aids grew in number and in the proportion of total funds. These aids had two purposes: (1) to stimulate the development of special programs requiring extra costs to meet specific needs and (2) to assure high priority of these programs in the educational milieu.

Capital outlay has received spotty consideration in state aid plans. Even today, only a few states have developed a plan of financing that reflects the principle of integral relationship between the educational program and the necessary capital facilities.

After World War II the problems of financing education have been accentuated by mass migrations, increased social malaise and discontent, and high concentrations of youth with serious educational handicaps in the cities. The declining population in the rural areas has had an inflationary effect on per capita costs of education for those remaining. All of these factors have added to the difficulties in keeping up-to-date in the measurement of educational and financial needs in every state.

This study presents a method of measuring the financial inputs of designated program categories. The term *program* is used broadly to classify instructional and service activities into groups with distinctive characteristics. Programs can be described in terms of comparable work or service of the employed staff members, the target population served, essential materials and facilities, and relationships to other programs.

The total educational process can be broken down into programs as functional components which can be related to pupils, their needs and development. The pattern or configuration of programs with distributions of pupils may vary from one local school district to another. However, there are commonalities to provide norms of practice within each state for estimating needs.

The taxonomy of programs in this study includes those in current use. These may be modified in the future as the needs of pupils dictate. The procedure is designed to identify the target population through diagnosis of pupil needs rather than using indirect methods of estimation such as counting the number of children from low income families.

The categories of programs for which measures of differential costs have been developed include the following: (1) Early Childhood Education, (2) Basic Elementary and Secondary Education, (3) Special Education, (4) Compensatory Education, and (5) Vocational Education.

The following programs have been studied, with each one requiring a special procedure for measurement of need: (1) Adult and Continuing Education, (2) Food Services, (3) Transportation, (4) Capital Outlay, and (5) Community Junior College Education.

The findings of special studies on these programs give a picture of the distribution of inputs among samples of school districts throughout the country. Exemplary programs are described; i.e., programs that most nearly represent the best practice we know today. Estimates of pupils in need of these programs, cost differentials among programs, and projected costs for the year 1980 are presented.

## EARLY CHILDHOOD EDUCATION

There is not complete agreement among educators on the age range of children to include in the field of early childhood education. Some persons prefer to include children up to about age nine, thereby including the primary or first three grades of elementary school. The most general classification appears to be age five and below, including kindergarten, nursery school, and infants. This study has adopted the latter definition in order to focus on the lack of universality of kindergarten attendance (about 76 percent of 5-year-olds in attendance in 1968-69), and the very limited nature of nursery schools and other programs for children under five years of age.

The acceptance of this definition in no way argues against a program for children beginning at age three and extending through the first two or three years of the elementary school. All evidence reported in this study strongly supports the proposition that early childhood programs should be an integral part of the elementary school. But the definition used in this study helps to focus attention on how best to organize programs that meet the needs of children in their early years.

The researchers for this study found formal schooling for children organized as nursery schools for ages three and four, and kindergarten for five-year-olds. Very few programs for infants under age three were found; and these were limited largely to experimental programs in universities. Most leading scholars argue that formal education outside the home should not be established for children under three years of age until there is more knowledge about the needs of these children and their development.[1]

### Parent Education

There is sufficient knowledge from research and experimentation to justify parent education programs for children under three years of age. Parents can follow prescribed programs of activity that will have a profound effect on the development of infants. The special assistance that parents need can be provided by the public school system. These programs include conferences, seminars, and other activities for parents to develop their skills and to plan specific activities with children in the home. Parents are "teachers" of their children. Their effectiveness can be improved immensely. Some investment in parents may yield greater educational dividends than comparable amounts spent directly on the respective children.

### Day Care Program

The day care program has as its primary objective the care of young children whose mothers are away from home during the day for work, illness, and emergencies. Activities consist primarily of custodial care and supervision of meaningful play, recreation, lunch service, and rest.

To be most effective this program should be carefully planned in conjunction with, or as an extension of, an instructional program. The child's day should be organized to provide a combination of an educational program for part of the time and homelike care for the remainder. The least effective program consists of unskilled supervision which may provide combinations of activities that produce deleterious effects on young children.

There is some reason to believe that the time has come for public school systems to introduce day-care programs for at least the children of most needy families. In addition the public school system should be given responsibility to provide general supervision and technical services to private day-care centers to ensure reasonable standards.

### Nursery School: 3-4 Years

Children of three and four years of age need a formal educational program with an appropriate environment that provides an opportunity for a natural and well-rounded development. According to the findings of this study, the model program to be highly effective should be organized into instructional units of about 15 to 20 children with a staff consisting of a teacher and two aides, supplemented by participation of the mothers on a part-time basis. These instructional personnel must be augmented by a supportive staff consisting of administrators, psychologists, media specialists, and others. The school day should be about 2 1/2 to 3 hours. The teacher should devote her time to only one instructional group and to the parents of the children. She should not have two groups, or sessions, each day as is customary for many kindergarten teachers.

The physical environment is extremely important for the staff to operate an effective program of varied activities. Indoor space of about 100 square feet per pupil is essential, with proper arrangement and furnishings for the learning activities. In addition auxiliary space is needed for toilets and for storage of clothing and supplies. Outdoor space with appropriate equipment for play is equally essential. These are the characteristics on which cost estimates of inputs are based in this study.

### Kindergarten

The kindergarten is an extension of the nursery school program, primarily for five-year-old children. This program places emphasis on the total development of the child in areas such as speech, language, articulation, problem solving, self-image, and other cognitive qualities. In addition the program includes attention to social and physical development of children.

The characteristics of a model, or effective, kindergarten are as follows: instructional units of 20 to 25 children; a staff consisting of a teacher, a teacher intern, an aide, and a part-time volunteer mother; indoor space of about 100 square feet per pupil properly equipped, augmented by auxiliary storage and other space; and outdoor space with appropriate arrangement and equipment.

The length of the school day should be about 3 to 3 1/2 hours, with the teacher having only one group (session) and conducting a program for parents of the children. Most kindergartens are operated on double sessions with severely limited staff and facilities. The needed changes in the decade of the 1970's are: a conversion to single sessions, increase in inputs of staff and facilities, and establishment of programs for the total 5-year-old population. These changes provide the bases in this study for estimates of needed inputs.

## BASIC ELEMENTARY EDUCATION

Since some school districts do not operate kindergartens and other programs below first grade, the elementary grades one through six are defined in this study as a base of reference for analysis of costs. By definition basic education is the residual or great mass of educational activity for most pupils, after netting out the pupils with unique learning difficulties for whom special programs are provided. In elementary school the special programs are defined in this study as (1) special education and (2) compensatory education.

A new image of the elementary school may become widely established by 1980. Knowledge about the development of children suggests that elementary education will be reorganized so as to phase early childhood programs with grades one through five. The sixth, seventh, and eighth grades, or equivalent terms to describe an intermediate developmental level, will probably become the predominant grouping for a middle school between the elementary school and the high school.

The emerging characteristics of basic elementary education may be classified as follows:[2]

1. The program will be planned with clearer objectives for child development.
2. The scope of learning activities (curricula) will be broader than those in contemporary schools.
3. Instruction will be organized with greater collaboration of staff members, a greater variety and flexibility in grouping.
4. Pupils with special needs will have access to a greater number of staff members with varied talents for assistance.
5. Traditional libraries will be expanded into complex resource centers, including all types of learning materials.
6. The physical environment will be designed to accommodate changes in learning activities through such arrangements as more clustering of areas for collaboration of teachers, and special rooms for various groups and types of activities.
7. Schools will have a greater variety of instructional equipment and supplies than at present.
8. Schools will have a proportionately greater staff component for non-teaching services than at present, e.g.: teaching assistants, psychologists, counselors, health personnel, social workers, research and media specialists.

## BASIC SECONDARY EDUCATION

For purposes of cost analysis the grades seven through twelve are designated as the base for secondary education.[3]

### Middle Schools

Recently middle schools have been organized with grades six, seven, and eight. These grades encompass a desirable combination for the physical, emotional, social, and intellectual development of most youth. The fundamental characteristics of staff, services, and physical resources are similar to the elementary level. Yet, fields of instruction show the beginnings of specialization which become more distinct in high school. There is somewhat more differentiation of staff because of slightly more specialization in fields of knowledge.

The most unique substantive change in the middle grades is the introduction of some learning activities which formerly were deferred to the high school. There are no sound psychological or pedagogical reasons to defer opportunities that begin the development of basic skills in a variety of fields such as practical arts, the fine arts, and science.

Pupils are ready to learn the use of simple power tools, business office equipment, micro analysis in science, music, painting, ceramics, and others at a more sophisticated level of achievement than the typical junior high school has afforded in the past. Some of these basic skills are essential for introductory vocational study that twenty percent or more of the youth need by the time they reach the eighth grade.

### High Schools

Basic secondary education in high schools is defined as the residual after netting out special programs and vocational education requiring proportionately high inputs per student.

Like the preceding grade levels, high schools are undergoing changes. Their holding power is increasing due to various social and technological pressures for a minimum achievement—high school graduation. They are being challenged to offer broader and richer opportunities, requiring both a reordering and an increase of inputs.

The exemplars observed in this study may be the forerunners of the typical schools in 1980. Some of their unique characteristics are: expanding breadth of program; greater flexibility in the instructional process, with greater variety and sizes of groups; greater incentive for individual achievement; more specialization, division of labor, and collaborative work among staff members; and more extensive physical resources. In common with exemplary elementary and middle schools, the exemplary high school of today may be the typical school of 1980.

## SPECIAL EDUCATION

Special education is a program that was established originally for the extremely deviate pupils with mental and physical handicaps that required separation into groups for special instruction.[4] The incidence of children with severe handicaps averages about three percent of the total school population. However, there is much variation in the incidence among communities because of the mobility of families. Many families choose their place of residence on the basis of the availability of programs to accommodate a handicapped child.

Children with severe handicaps occur most frequently in the six to twelve age range. This is due largely to better identification because of compulsory school attendance and the validity of diagnostic procedures for children of six or seven years as compared with younger ages.

The lower incidence in the middle and high schools can be attributed mainly to inability of many handicapped pupils to progress beyond the curriculum of the elementary grades. A slight effect may be due to lower life expectancy than normal children.

The children in this category have personal needs that require special instruction. Some of them have to be in separate groups, while some do better in regular classes for part of their work and in separate classes for the remainder. The school system, however, needs teachers with special knowledge and skills and nonteaching specialists to accommodate these children.

## COMPENSATORY EDUCATION

This category is used to define tutorial and remedial programs for young children and older youth with serious learning difficulties, emotional problems, and general social maladjustments.[5] The source of learning difficulties for these pupils may be impoverished home environment, unwholesome neighborhood, hypertension, emotional illness, and lower than average mental ability (but not as low as children classified in special education programs).

Most programs for youth with these characteristics are in relatively early stages of development. There is much variation among districts in the nature of resources and organization of programs to work with these children. In some districts separate administrative departments have been organized to operate these programs, leading to some fragmenting of professional groups with overlapping, and sometimes competing, roles. In others, the specialized staff has been organized to deal with the total range of deviate needs. This latter pattern appears to be the more adequate one for future development of the total field of special programs.

Current compensatory programs for young children warrant specific mention. About two-thirds of enrollments of children under five in early childhood programs are of short-term compensatory nature. This, however, reflects an experimental stage in the development of compensatory programs rather than the fundamental nature of early childhood programs. The exemplary nursery and kindergarten programs as described earlier are totally adaptive and accommodative for all children of these ages except the severely handicapped ones who may have to be separated into special groups along with older elementary school age children with like difficulties.

For purposes of this study compensatory programs have been divided into two groups by ages of pupils: (1) grades six and below, and (2) seven through twelve.[6] These divisions provide comparisons of inputs and costs of programs that correspond to the respective grade levels of basic or regular programs.

Unavoidably, there is a large overlap in the classification of pupils in special programs among school districts. Some pupils are classified in compensatory programs because of supplementary federal funds. Other pupils with very similar learning difficulties may be classified in special education programs because of definitions that conform to requirements of other sources of supplementary funds. The problems of classification and cost analysis are simplified by defining two groups of severe difficulties: (1) those commonly classified in special education with severe mental and physical handicaps (described in the preceding section); and (2) those with severe social and emotional problems requiring detention or institutionalizing for extended periods of time. The latter group includes those emotionally ill, delinquents, home and hospital bound, unmarried pregnant girls, and some dropouts.

A special group of institutionalized students consists of disoriented dropouts. These are individuals who have become so disorganized that they cannot function in the regular school environment. They exhibit a variety of characteristics: hypersensitivity, social isolation, loss of purpose, and extreme insecurity. These students should be served in so-called continuation schools which are organized for therapy and rehabilitation. Some pupils can be restored to the regular school, others need part-time jobs to help them regain self-confidence and develop skills for making a living. Costs are estimated to be about equivalent to the detention schools for delinquents and emotionally disturbed pupils.

The largest group of pupils classified in the compensatory category are those with a wide range of learning difficulties but of less severity than the two groups of very severe difficulties described above. The treatment which the school provides for this largest group includes instruction in regular groups, additional tutoring, small group instruction, extensive counseling services, and other special attention.

This procedure of diagnosing pupils and developing instructional and remedial services to meet individual needs avoids many problems encountered in using proxy methods such as identifying pupils from family income and other characteristics.

In addition to these special programs, at least part of the time of some special teachers and nonteaching specialists is needed for the majority of pupils who never become identified with any special program. These pupils, too, need the help of counselors, librarians, and even perhaps an infrequent conference with a psychologist. The fundamental distinction between the *special* and the *basic* programs,[7] at least for measuring the cost of inputs, lies not only in the formal organization for instruction but also in the amount of special staff time and resources per pupil.

## VOCATIONAL EDUCATION

Vocational education has a long history as a special component of secondary education.[8] The federal government has played a dominant role in stimulating the establishment of programs and fostering new vocational education concepts since the Smith-

Hughes Act of 1917. That act provided funds to support vocational courses of instruction to develop skills exclusively for specific occupations.

By the mid 1930's social and economic changes led to a broadening of the concept of vocational education, bringing the definition closer to the general goal of all education for well-rounded development of the individual.

The federal Vocational Education Acts of 1963 and 1968, and the stated goals in many state plans to implement these acts, express objectives in such terms as the following: "development of the individual as well as meeting the needs of the labor market," "to develop within the individual the personal-social traits which will help him in relating well to other people, both on and off the job, and in making him a good citizen and one who can enjoy and appreciate the finer things in life," "to assist in the development of skills in personal, social, and civic relationships needed for full participation in society as a worker, family member and citizen," and "a common purpose of occupational training and education in general must be a development of students' ability to evaluate their own aptitudes, interests, and abilities in relation to the multitude of occupational opportunities in the modern economy, and to make appropriate educational and occupational decisions on the basis of this self-evaluation."

While these phrases emphasize the learning of salable skills, they also recognize the necessity for total development of the individual. Furthermore, there is the recognition that vocational competence is a function of other personal attributes commonly referred to as general competence.

Despite these declarations of purpose, enrollments in vocational programs in public schools have remained relatively low over the years. Studies of attitudes suggest that many pupils do not perceive the experiences in the vocational programs as contributing to fulfilling the general educational goals. The trends of enrollments, when coupled with other occupational data, provide bases for estimating the needs for vocational education in the public schools.

## ADULT AND CONTINUING EDUCATION

Continuing education for adults of all ages may rank close behind early childhood education in the need for development in the immediate years ahead.[9]

Enrollments of older adults in programs offered by public school systems vary widely. In a sample of 28 districts[10] in one of the special studies of this project, the adult enrollment in one district during the year equals 23 percent of the regular day school enrollment. The next highest is 11 percent. Most are below 5 percent. Several are one percent or fewer. About three-fourths of the adults are taking work equivalent to postsecondary education offered in most junior colleges. In some states, junior colleges have developed extensive adult programs in recent years which have attracted individuals away from the programs in the public schools.

A heavy demand for programs in the public schools still persists according to the views of educational leaders.[11] The demand appears in two major forms: One is the private demand of young adults and persons on low income for programs to increase their income. High-income adults seek programs primarily for leisure and nonincome activities. The other demand is found in the programs that are mandated for apprenticeship and licenses.

Financial support of adult programs from tax revenue ranges from substantial to none. The typical middle to large size school district provides space for instruction, utilities, custodial service, and a staff member to serve as director or general supervisor. Expenses for teachers and instructional materials are provided from fees charged the students. Most programs consist of an ad hoc collection of short-term courses arranged as teachers can be found and as interest is manifested. A few programs consist of firm curricula that possess the qualities of depth and sequence that many adults desire.

One particularly fruitful area for public school involvement is with a group of dropouts in need of continuing education on a part-time basis within a new institutional environment. The public schools are attracting very few of them back into evening programs.

## FOOD SERVICES

In 1968-69 about 37 percent of pupils enrolled in the public schools participated in the National School Lunch Program.[12] Some schools serve close to 100 percent of the pupils, while others serve none. Nearly 20 percent of the pupils were in schools with no food service. About 15 percent of all lunches were served to children from needy families. This figure is estimated to be 25 percent in 1971.

Cities with population of 250,000 or more serve the lowest percent of pupils because of crowded conditions, lack of facilities, and the tradition of "home food service" in neighborhood schools. In 36 of 57 large cities reporting in this study there were 1,883 schools attended by 1,083,263 pupils with no food service in the schools.

### Sources of Funds

Estimates of expenditures by sources for food services in public and private schools in 1968-69 are as follows:[13]

| | | |
|---|---|---|
| Federal Government | $ 564 Million— | 26.7% |
| State and Local Governments | 180 Million— | 8.6 |
| Other Local Contributions (Nontax Revenue) | 320 Million— | 15.1 |
| Children's Payments | 1,049 Million— | 49.6 |
| Total | $2,113 Million— | 100.0% |

This total figure was about 5 percent of all expenditures for public and private elementary and secondary schools in 1968-69. About half of the federal government's contribution was in the form of commodities and the remainder in cash.

### Organization of Program

Many educators and laymen have argued that food service programs provide an excellent opportunity for instruction in nutrition. Findings in this study indicate that instruction in nutrition occurs in various areas of the curriculum rather than under the management of food service. Most educators do not accept the view that these two functions can be unified effectively. The school cafeteria provides an environment for learning the social norms of dining. Courses in science and homemaking provide the most appropriate environment for systematic study of the knowledge of nutrition.

The food service program entails responsibility at the state level to expedite the federal and state contributions, and provide assistance to local school districts for the most educationally effective and economical operation of food services.

Four patterns of food service management have developed in local school districts:

1. Self-contained school cafeteria,
2. Central processing—satellite serving units,
3. Vending systems for complete meals, and
4. Automated vending systems for "convenience" items.

Most children are served by the first two methods.

The trend in the future may be toward central processing supplemented with vending systems. These methods of administration may best serve crowded schools in cities and also meet the rising cost of labor in the processing of food. Large school systems and regional cooperatives of small districts can organize personnel for food service on a competitive basis with private vendors.

### Projections of Food Service Needs to 1980

At a maximum participation rate of 95 percent, some 50,250,000 pupils will be served school lunches in public and private schools in 1980. Estimating the cost of lunches at 66.8 cents each the total cost would be approximately $6,040,000,000. It is estimated that cost of breakfast for needy pupils would be approximately $320,000,000 making a grand total of $6,360,000,000 in 1968-69 dollars. How much of this amount will be financed from public funds and how much by parents paying for children's lunches is unknown. This will be determined by Congress, 50 state legislatures and some 17,000 boards of education. If the same proportion of this total is provided from taxation in 1980 as in 1968-69, approximately $2,245,000,000 would be supplied by the federal, state and local governments.[1] Since these estimates are based on 1968-69 dollars, the actual amount would be considerably greater, assuming that inflationary trends will continue.

## TRANSPORTATION

Transportation serves two fundamental functions: (1) a commuting service from home to school and return and (2) an instructional service to expand the learning environment beyond the classroom.[14] The commuting service meets a variety of needs: transporting pupils beyond reasonable walking distance to school and even within walking distance under conditions hazardous to children when walking; facilitating the operation of flexible programs such as kindergarten, special instructional centers for handicapped pupils, regional programs of vocational education; and providing for the integration of ethnic and socioeconomic groups.

The scope of these functions is subject to change during the next decade, increasing the existing complexity of measuring inputs. In the past the problem of measurement centered primarily on the daily commuting to and from home for the purpose of computing the amount of state funds due the local district under the prevailing state policy.

There are several determinants of transportation cost which have been either ignored or treated inadequately in the finance plans of some states. The degree of population sparsity is a major one. Basically the average distance per pupil transported is the most fundamental variable. Road conditions once made a difference, but not much today. The degree of school consolidation in sparse areas is still a variable of substantial effect on aggregate transportation cost, but somewhat less on cost per pupil.

The incidence of pupils in special programs is another variable of importance. These programs call for some custom-type equipment and special scheduling. Children in nursery school and kindergarten have short sessions and must be taken home ahead of other pupils. Regional instructional centers for special programs serving the constituent population of more than one school require secondary scheduling and routing. These variables can have large impacts in sparse areas where distances are great as compared with more populous areas.

In areas of great sparsity the transportation cost increases with consolidation of schools. However, part of the increase is offset in economies achieved through larger size schools. Overall expenditures for consolidated schools may not decline, however, because consolidation often is accompanied by an expansion of the educational program, thus obscuring the inherent economies of scale.

In areas of greater density the relative number of children to be transported because of unreasonable walking distance may be small compared with the sparse areas. However, the costs for pupils in special programs may be relatively larger because of the higher incidence rates of pupils qualified for the programs. Furthermore, the minimum distance set for transporting regular pupils is difficult to maintain. Thus, the aggregate cost is increased by a small percent of spillover at the margins of transportation boundaries.

In all cities and urban areas traffic and other safety hazards justify the transportation of many children, especially young ones, who otherwise could walk to school. Many older students, especially those attending special instructional centers, may have access to public transportation, with some savings in cost. In heavily congested areas the time required per pupil mile of travel is greater than in sparse areas. Though fuel consumption may be less the time of the driver is greater. Another variable whose added impact is not yet known for lack of sufficient data is transportation to achieve balanced socioeconomic-ethnic groups.

Transportation to extend the classroom learning environment could increase sharply if this service were extended to more teachers.

### Projected Needs of Transportation for 1980

Little increase in the total number of pupils of school age 5-17 is expected by 1980. There will be changes within local districts with variable impacts on transportation costs. If early childhood programs expand to meet the low demand estimates of this project, additional transportation will be needed. Expansion of these programs will have the greatest effect on transportation cost in small towns and rural areas where these programs are least developed.

New policies on establishing social balance among schools can add substantially to the cost of transportation. If such policies result in educational improvement, the additional transportation cost could be classified as compensatory education expense.

A large factor to affect transportation expense, as other costs, is inflation. Further school consolidation and suburban growth may be expected in the 1970's, perhaps at a rate equal to the rate of the 1960's. During that period the number of pupils transported increased about 50 percent. In the 1970's an annual inflation of 3 percent plus an overall increase in number of pupils transported from a low of 10 percent to a high of 25 percent would result in a total increase from a low of 50 percent to a high of 65 percent above the $900 million national expenditure in 1968-69.

## CAPITAL OUTLAY

Capital outlay is perhaps the most capriciously financed element of educational costs.[15] In 1968-69 only 26 states provided state-collected revenues to aid local school districts in the financing of capital facilities. In the other 24 states the districts provided the total cost of these facilities through issuance of local bonds, payment of rentals, and repayment of state loans from local tax revenue.

The legal procedures in most states to provide revenues for capital outlay appear more like ingenious devices to constrain the use of public monies than measures to ensure the flow of funds where needed. In 1968 the public school districts spent a total of $4,461 million for capital outlay and $1,104 million for interest on bonded indebtedness. In that year the sum of these amounted to 19.1 percent of the current operating expenditures for public elementary and secondary schools. Only 11 percent of the capital expenditures were obtained from state funds. The corresponding percentages for 1969-70 and 1970-71 are 14.1 and 13.2, respectively. The percentages may decline further in the future unless methods of financing these facilities are changed.

Beginning in 1949 the percentage of total educational expenditure devoted to capital facilities rose from 22.6 percent to 29.3 percent in 1953-54. Thereafter this proportion declined gradually to the figure of 13.2 percent in the year 1970-71. Why? The principal reasons were a heavy inventory of obsolete facilities around 1950, a reasonably expansive property tax base in the decade of the 1950's, and a growth spurt in the school population. Some states used surplus funds accumulated during the war years, and others authorized a few dramatic bond issues. Only a very few set out to establish a system of funding that was designed to keep up with increases in enrollments, to eliminate the inventory of obsolete facilities, and to establish an adequate replacement schedule of buildings and facilities within a reasonable time.

This historical practice of placing most of the fiscal and administrative responsibility on the local school district to provide the capital facilities has become fiscally and educationally bankrupt. What is the present state of affairs?

There are no reliable data to provide a dependable measure of needs. Mere tabulations of buildings, classrooms, and other space, classified as to date of construction, need of renovation, or other vague descriptors provide only rudimentary facts. The regular information systems do not provide the kinds of data for measurement purposes. Space, equipment, and materials are neither quantified for general comprehension nor for showing relations to the programs and to the pupils who are served. Thus, a dependable picture of the capital needs even in a single school district requires an intensive survey, a procedure of impossible scope for the nation as a whole.

The samplings of districts throughout the nation in this finance project have given some leads on the dimensions of needs for buildings and equipment. Some of the most valuable insights about these future needs come from analyzing the characteristics of selected groups of highly innovative schools; elementary, middle, and high school. The sample consists of thirty schools which clearly are exemplars of 1980. The most striking feature about them is the interdependence of the capital facilities and the programs or processes of learning and instruction. Without exception these schools have adequate facilities for their programs. Space is planned to suit the educational activities. Shops and laboratories are not cramped, they have equipment to accomplish challenging purposes. Gymnasiums are designed for physical education as well as sports. Resource centers bear little resemblance to the libraries of the earlier school. Any worthwhile interest in society, born of the arts and sciences and humanities, finds a place in these schools.

These schools will not be obsolete in five years, or ten years, or even thirty years. They can be adapted to accommodate changes in purposes and programs. The buildings are arranged in campus style with flexibility in usage that a single, compact three-story structure does not possess. Many schools constructed in recent years have much built-in obsolescence that will clamor for renovation before the end of this decade.

No survey exists to indicate the distribution of capital facilities including buildings, sites, and equipment. Despite the lack of this type of information, a number of observers have made estimates based on trend lines extended from the past decade with adjustments for the anticipated leveling off of pupil enrollments.

These methods leave much to be desired as realistic projections. For example, a low demand for development of early childhood programs will call for housing 2,866,000 of 3- and

4-year-old children, 950,000 of 5-year-old children not now in kindergarten, and 1,867,000 additional 5-year-old children in kindergarten if increases in population occur as projected by the Bureau of the Census. These developments alone would call for 255,000 additional classrooms by 1980.[16]

Many obsolete buildings are in need of replacement. In addition, at least 12,000 school districts are in serious need of reorganization, a result which would then facilitate effective planning and consideration of many obsolete schools. Many other schools with a high degree of obsolescence will require extensive renovation. Some schools that appear deceptively good, especially to those who have become attached to them, in truth mask the high cost of inefficiencies in instruction and learning resulting from poor facilities.

Investment in adequate capital facilities appears to offer great returns for expenditures. There is evidence in the exemplary schools observed in this study that the investment in capital facilities designed and planned to serve innovative programs increased the performance of teachers and pupils immeasurably.

### Projections of Capital Needs

Conservative estimates indicate that the annual rate of investment in recent peak years of 70 to 80 thousand classroom units should increase markedly to accommodate new programs, expansions in present programs and services, and to replace seriously obsolescent facilities by 1980. The estimates range from a low of 60 percent to 100 percent increase in recent annual investments at 1968-69 prices. The higher rate is more probable in view of capital costs in the exemplary schools observed in this study. These schools with reasonably adequate buildings, equipment, and site development averaged about $4,000 per pupil at 1968-69 prices, or $80,000 per classroom unit.[17] The average for the national expenditures in those same years was close to $60,000 per classroom unit or $3,000 per pupil.[18] These differences show up in the exemplary schools in a number of ways: larger classrooms, more special rooms for greater variety of instructional activities, better designed laboratories and shops, and others.

### Methods of Measuring Capital Needs

In the past the following methods have been used in measuring the costs of capital facilities: (1) costs of approved construction projects, including land and site development, buildings and equipment, (2) a fixed cost per pupil or classroom unit, (3) a fixed cost per pupil or classroom with weightings for variable land prices, costs of construction, and size of the school population, and (4) depreciation schedules based on the useful life of the facilities.

Each of these methods must be applied under conditions of defined educational objectives and the programs to be operated. Also, they must be subject to adjustments for changes in price indexes from year to year. Since these measures are expressed in aggregates or in aggregate unit amounts they must be derived from components of some type. Usually these components consist of classifications such as grounds; buildings divided into types of space such as classrooms, service areas, large mass areas such as auditoriums and gymnasiums; plant equipment such as heating and air conditioning facilities; and instructional equipment such as furniture, scientific apparatus, shop tools, and library resources.

In recent years, some studies using the method of program cost analysis for operating expenses indicate that a similar approach may be feasible for capital facilities. Standards of adequacy for capital facilities of the various programs would be used to estimate the needs for target groups of pupils. Thus, the module of need would be the pupil-learning unit or the classroom unit. For example the standard of space for adequate instructional-learning activity in nursery schools is estimated in this project at about 100 square feet per child. In grades 1-6 the average is 80 square feet. In high school, laboratories for vocational courses require an average of about 150 square feet per pupil, compared with 125 square feet in the basic or regular classes.

In addition there are central service areas for administration, counseling, health, resource learning centers, and food that are functionally related to the aggregate of classroom space and facilities. Also, there are facilities such as gymnasiums, auditoriums, and outdoor playgrounds that are related to the program structure and the number of pupils in the school.

Measures of needs for capital facilities must be designed to obtain an aggregate of the various components of each school, starting with the instructional programs for designated pupil needs as the basic modules.

## COMMUNITY JUNIOR COLLEGE

The community junior college has come through a transitional period of nearly 50 years, changing from the early conception as an extension of the high school to an integral part of higher education.[19] There have been extended debates over these two concepts. In some states the development of the junior colleges has been delayed because opposing views have not been reconciled.

In some states the public junior colleges still operate under the jurisdiction of the public school system. In other states these institutions are now organized as a special system within the broad system of higher education.

In some states as junior colleges have been removed from the jurisdiction of public school systems to systems of their own within the framework of higher education they have retained some of the earlier purposes as well as methods of financial support. Their purpose is to serve three major functions: (1) programs for youth who plan to continue higher education and transfer to degree programs in senior institutions, (2) programs in specialized occupational work requiring less than four years of postsecondary training, and (3) continuing education for adults.

### Target Population of the Junior College

The target population is not fixed, it is dynamic and changing. Its composition changes as the institution develops in response to perceived demands. A description of this population in a few exemplary institutions that have comprehensive programs, an image of prestige, and acknowledged standards of excellence may indicate the trend of general development in the 1970's.

First, as the name implies, the institution is a community college, serving primarily clientele of the local area. The population is primarily a commuting group. Most students live at home and commute to campus daily. Many of them hold part-time jobs as a condition of earning part of their costs. Some prefer this style of life instead of residing on campus. Second, adults may pursue part-time study and continue in full-time employment. Unemployed adults, like others, can pursue training without relocating their families. Third, the institution may serve students in residence who live beyond reasonable commuting distance or who are attracted because of the educational opportunity.

The age distribution is another important characteristic of the target population. The pattern varies according to the extent to which the institution anticipates the needs of prospective students and provides programs for them. Among the well-established comprehensive colleges the following distributions are common: (1) under 22 years—60 percent, (2) 23 to 29 years—25 percent, and (3) over 30 years—15 percent.

Data are not available on distributions of student age by programs. General observations indicate that increasing proportions of students under age 22 are pursuing college parallel programs to transfer to senior institutions. Substantial numbers are pursuing terminal associate degree programs of two to three years. Most of those over age 23 are pursuing the latter programs.

### Financial Support of the Junior College

There is little commonality among the states in the patterns of support for either operating expenses or capital costs of junior colleges. State contributions for operating expenses vary from about 4 percent to 100 percent. Half of the states provide less than 50 percent of these expenses from state taxes. Student fees constitute from 20 to 30 percent of the operating expenses.

The support of capital facilities is divided between local taxes and state taxes, supplemented by some federal funds in recent years. Data are too recent to indicate any trends. Considering the burdens on local tax bases for the public schools and other local government, some states are moving toward major support of operating expense and total support of capital facilities from state sources. Most students of educational finance believe that complete support from state and federal sources is inevitable. The principal hindrances to this development appear to be general reluctance to make the concomitant changes in governance and taxation.

### Program Cost Differentials in Junior Colleges

State leaders in higher education are interested in cost differentials among programs for the implications on fiscal policies. Manpower needs require that the state should have policies to offer programs to meet the needs in all occupational fields. Some occupations have relatively few workers as compared with others, and the requisite training programs are expensive. Bio-engineering technology and dental technology are examples which cost twice as much per student as some programs such as business accounting and general college transfer programs.

Every junior college must make a selection of programs among a wide range of potential offerings. These decisions may be affected by the costs of the programs. Moreover, the allocations to other programs within an institution may be affected if the variations are not accommodated reasonably well by the prime funding source.

As uniform program accounting practices develop it will be possible to establish cost norms on the course components of programs. Since courses are the instructional-learning modules of programs, their combinations provide the most accurate method of determining comparative costs applicable to registrations of students in the respective programs. An example of program cost ratios based on the combinations of component courses in one large comprehensive junior college is as follows: Liberal Arts, 1.00; Secretarial Science, 1.14; Business Administration, 1.01; Data Processing, 1.21; Chemical Technology, 1.86; Electrical Technology, 1.54; Commercial Art, 1.44; Medical Assistant, 1.38.

## Projections of Junior Colleges to 1980

These projections are based on a careful study of fifteen comprehensive community junior colleges in seven states.[20] The groups of students to be served are the following:

1. High school graduates preparing for transfer to four-year institutions.
2. Youth preparing for specified occupations requiring two years of training beyond high school.
3. Youth who are undecided on their careers.
4. Youth preparing for job-related skills.
5. Talented youth who graduated from high school early.
6. Adults who desire further education for personal, social, and other reasons.
7. Adults requiring vocational upgrading.

8. Adults requiring change in occupation.
9. Adults wanting "refresher" courses.

From a third to a half of the students in junior colleges by 1980 may be over 22 years of age. In the fall of 1970 about 2,500,000 students were enrolled in these institutions. If the proportion of the total population enrolled in the fifteen exemplary institutions covered in this study is a guide, the junior college enrollments in the nation will double by 1980. Growth of this magnitude will depend on development of these institutions in more than half of the states.

## THE MEASURE OF PROGRAM COST DIFFERENTIALS

In this chapter the measurement of program cost differentials is limited to current operating expenses of the public elementary and secondary schools. Community junior colleges are not included because they are separate operational entities which have more in common with other higher educational institutions than with the secondary schools. The procedures described below show how certain unit cost differentials for important program areas of the elementary and secondary schools may be computed.

The procedures of measurement are based upon definitions of programs to serve pupils with differential needs. The aggregate measure of costs for current operating expenses of day schools is illustrated for three districts in Tables 6-1, 6-2, and 6-3. The participating districts chosen for illustrative purposes are a central city, an independent (nonmetropolitan) district and a suburban district. The central city is typical of others with high concentrations of migrants, impoverished families, and multiethnic groups with bilingual difficulties. The independent district has three ethnic groups, about 60 percent Indian-American, 20 percent Anglo-American, and 20 percent Spanish-American. The suburban district has a high social homogeneity of middle to upper income families.

These measures of costs are based primarily on norms of operating expenditures in the sample of districts studied by McLure and Pence.[21] These norms will, of course, vary for different samples of districts. However, regardless of variations in numerical ratios, high cost pupils in one sample will also be found to be relatively high cost pupils in other samples.

### TABLE 6-1

AGGREGATE MEASURE OF PROGRAM COST DIFFERENTIALS
CENTRAL CITY
1968–69

| *Program (1)* | *Number Pupils Enrolled (Head Count) (2)* | *Total Need (Estimated Number in Need of Program) (3)* | *Average Per Pupil Cost Differential (4)* | *Number Weighted Pupil Units in Present Programs Col. 2 × Col. 4 (5)* | *Number Weighted Pupil Units for Total Need in Programs Col. 3 × Col. 4 (6)* |
|---|---|---|---|---|---|
| *Early Childhood and Elementary Education* | | | | | |
| 1. Parent Education Program | 0[a] | 12,419[a] | 1.40 | 0 | 17,387 |
| 2. Nursery School 3- & 4-year-olds | 1,981 | 82,795 | 1.40 | 2,773 | 115,913 |
| 3. Kinder-garten | 53,992 | 81,800 | 1.30 | 70,190 | 106,340 |
| I. Subtotal | 55,973 | 177,014 | | 72,963 | 239,640 |
| 4. Extended Day Care Program | — | — | 1.30 | — | — |
| 5. Special Education: Severely Handicapped Mentally & Physically (Grades: 6 and below) | 7,509 | 13,161 | 2.55 | 19,148 | 33,561 |

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[a] One FTE pupil enrollee equals 10 parents. Total parent need equals 1.5 times estimated nursery school enrollment.

TABLE 6-1 (CONTINUED)

| *Program* *(1)* | *Number Pupils Enrolled (Head Count)* *(2)* | *Total Need (Estimated Number in Need of Program)* *(3)* | *Average Per Pupil Cost Differential* *(4)* | *Number Weighted Pupil Units in Present Programs Col. 2 × Col. 4* *(5)* | *Number Weighted Pupil Units for Total Need in Programs Col. 3 × Col. 4* *(6)* |
|---|---|---|---|---|---|
| **6. Detention Schools: Severely Maladjusted Socially and Emotionally (Grades: 6 and below)** | 637 | 1,064 | 2.95 | 1,879 | 3,139 |
| **7. Compensatory Programs: Remediation for emotional educational difficulties (Grades: 6 and below)** | 41,778 | 102,025 | 1.68 | 70,187 | 171,402 |
| **8. Basic Education (Grades: 1-6)** | 242,059 | 176,728 | 1.00 | 242,059 | 176,728 |
| **II. Subtotal** | 291,983 | 292,978 | | 333,273 | 384,830 |
| ***Secondary Education*** | | | | | |
| **9. Special Education: Severely Handicapped Mentally & Physically (Grades: 7-12)** | 4,386 | 8,790 | 2.03 | 8,904 | 17,844 |

### TABLE 6-1 (CONTINUED)

| Program (1) | Number Pupils Enrolled (Head Count) (2) | Total Need (Estimated Number in Need of Program) (3) | Average Per Pupil Cost Differential (4) | Number Weighted Pupil Units in Present Programs Col. 2 × Col. 4 (5) | Number Weighted Pupil Units for Total Need in Programs Col. 3 × Col. 4 (6) |
|---|---|---|---|---|---|
| 10. Detention Schools: Severely Maladjusted Socially and Emotionally (Grades: 7-12) | 333 | 704 | 2.66 | 886 | 1,873 |
| 11. Compensatory Programs: Remediation for emotional educational difficulties (Grades: 7-12) | 40,104 | 58,701 | 1.83 | 73,390 | 107,423 |
| 12. Vocational Education[b] (Grades: 7-12) | 21,578 | 46,960 | 1.52[c] | 32,799 | 71,379 |
| 13. Basic Education (Grades: 7-12) | 168,401 | 119,647 | 1.28 | 215,553 | 153,148 |
| III. Subtotal | 234,802 | 234,802 | | 331,532 | 351,667 |
| IV. Grand Total | 582,758 | 704,794 | | 737,768 | 976,137 |
| V. Total | 1.00 | 1.00 | | 1.27 | 1.38 |

[b] Average enrollment equals 0.45 FTE in vocational courses and 0.55 FTE in basic courses.

[c] This would be 1.81 for equivalent full time enrollment in vocational education.

### TABLE 6-2

### AGGREGATE MEASURE OF PROGRAM COST DIFFERENTIALS
INDEPENDENT DISTRICT
*1968–69*

| *Program* (1) | *Number Pupils Enrolled (Head Count)* (2) | *Total Need (Estimated Number in Need of Program)* (3) | *Average Per Pupil Cost Differential* (4) | *Number Weighted Pupil Units in Present Programs Col. 2 × Col. 4* (5) | *Number Weighted Pupil Units for Total Need in Programs Col. 3 × Col. 4* (6) |
|---|---|---|---|---|---|
| *Early Childhood and Elementary Education* | | | | | |
| 1. Parent Education Program[a] | 0[a] | 160[a] | 1.40 | 0 | 224 |
| 2. Nursery School 3- & 4-year-olds | 0 | 1,068 | 1.40 | 0 | 1,495 |
| 3. Kinder-garten | 678 | 1,068 | 1.30 | 881 | 1,388 |
| I. Subtotal | 678 | 2,296 | | 881 | 3,107 |
| 4. Extended Day Care Program | — | — | 1.30 | — | — |
| 5. Special Education: Severely Handicapped Mentally & Physically (Grades: 6 and below) | 42 | 139 | 2.55 | 107 | 354 |

[a] One FTE pupil enrollee equals 10 parents. Total parent needs equals 1.5 times estimated nursery school enrollment.

TABLE 6-2 (CONTINUED)

| *Program (1)* | *Number Pupils Enrolled (Head Count) (2)* | *Total Need (Estimated Number in Need of Program) (3)* | *Average Per Pupil Cost Differential (4)* | *Number Weighted Pupil Units in Present Programs Col. 2 × Col. 4 (5)* | *Number Weighted Pupil Units for Total Need in Programs Col. 3 × Col. 4 (6)* |
|---|---|---|---|---|---|
| 6. Detention Schools: Severely Maladjusted Socially and Emotionally Grades: 6 and below) | 0 | 6 | 2.95 | 0 | 18 |
| 7. Compensatory Programs: Remediation for emotional educational difficulties (Grades: 6 and below) | 1,449 | 3,205 | 1.68 | 2,468 | 5,384 |
| 8. Basic Education (Grades: 1-6) | 4,898 | 3,134 | 1.00 | 4,898 | 3,134 |
| II. Subtotal | 6,409 | 6,484 | | 7,473 | 8,890 |
| *Secondary Education* | | | | | |
| 9. Special Education: Severely Handicapped Mentally & Physically (Grades: 7-12) | 28 | 92 | 2.03 | 57 | 187 |

TABLE 6-2 (CONTINUED)

| *Program* *(1)* | *Number Pupils Enrolled (Head Count)* *(2)* | *Total Need (Estimated Number in Need of Program)* *(3)* | *Average Per Pupil Cost Differential* *(4)* | *Number Weighted Pupil Units in Present Programs Col. 2 × Col. 4* *(5)* | *Number Weighted Pupil Units for Total Need in Programs Col. 3 × Col. 4* *(6)* |
|---|---|---|---|---|---|
| 10. Detention Schools: Severely Maladjusted Socially and Emotionally (Grades: 7-12) | 0 | 4 | 2.66 | 0 | 11 |
| 11. Compensatory Programs: Remediation for emotional educational difficulties (Grades: 7-12) | 594 | 1,682 | 1.83 | 1,087 | 3,078 |
| 12. Vocational Education[b] (Grades: 7-12) | 924 | 1,262 | 1.52[c] | 1,404 | 1,918 |
| 13. Basic Education (Grades: 7-12) | 2,659 | 1,390 | 1.28 | 3,404 | 1,779 |
| III. Subtotal | 4,205 | 4,430 | | 5,952 | 6,973 |
| IV. Grand Total | 11,292 | 13,210 | | 14,304 | 18,970 |
| V. Ratio | 1.00 | 1.00 | | 1.27 | 1.44 |

[b] Average enrollment equals 0.45 FTE in vocational courses and 0.55 FTE in basic courses.
[c] This would be 1.81 for equivalent full time enrollment in vocational education.

## TABLE 6-3

### Aggregate Measure of Program Cost Differentials
Suburban District
1968–69

| Program (1) | Number Pupils Enrolled (Head Count) (2) | Total Need (Estimated Number in Need of Program) (3) | Average Per Pupil Cost Differential (4) | Number Weighted Pupil Units in Present Programs Col. 2 × Col. 4 (5) | Number Weighted Pupil Units for Total Need in Programs Col. 3 × Col. 4 (6) |
|---|---|---|---|---|---|
| *Early Childhood and Elementary Education* | | | | | |
| 1. Parent Education Program[a] | 0[a] | 775[a] | 1.40 | 0 | 1,057 |
| 2. Nursery School 3- & 4-year-olds | 0 | 5,030 | 1.40 | 0 | 7,042 |
| 3. Kindergarten | 4,842 | 5,030 | 1.30 | 6,295 | 6,539 |
| I. Subtotal | 4,842 | 10,815 | | 6,295 | 14,638 |
| 4. Extended Day Care Program | — | — | 1.30 | — | — |
| 5. Special Education: Severely Handicapped Mentally & Physically (Grades: 6 and below) | 432 | 573 | 2.55 | 1,102 | 1,461 |

[a] One FTE pupil enrollee equals 10 parents. Total parent need equals 1.5 times estimated nursery school enrollment.

TABLE 6-3 (CONTINUED)

| *Program (1)* | *Number Pupils Enrolled (Head Count) (2)* | *Total Need (Estimated Number in Need of Program) (3)* | *Average Per Pupil Cost Differential (4)* | *Number Weighted Pupil Units in Present Programs Col. 2 × Col. 4 (5)* | *Number Weighted Pupil Units for Total Need in Programs Col. 3 × Col. 4 (6)* |
|---|---|---|---|---|---|
| 6. Detention Schools: Severely Maladjusted Socially and Emotionally (Grades: 6 and below) | 10 | 30 | 2.95 | 30 | 89 |
| 7. Compensatory Programs: Remediation for emotional educational difficulties (Grades: 6 and below) | 77 | 4,527 | 1.68 | 129 | 7,605 |
| 8. Basic Education (Grades: 1-6) | 29,661 | 26,746 | 1.00 | 29,661 | 26,746 |
| II. Subtotal | 30,180 | 31,876 | | 30,922 | 35,901 |
| *Secondary Education* | | | | | |
| 9. Special Education: Severely Handicapped Mentally & Physically (Grades: 7-12) | 240 | 491 | 2.03 | 487 | 997 |

TABLE 6-3 (CONTINUED)

| *Program (1)* | *Number Pupils Enrolled (Head Count) (2)* | *Total Need (Estimated Number in Need of Program) (3)* | *Average Per Pupil Cost Differential (4)* | *Number Weighted Pupil Units in Present Programs Col. 2 × Col. 4 (5)* | *Number Weighted Pupil Units for Total Need in Programs Col. 3 × Col. 4 (6)* |
|---|---|---|---|---|---|
| 10. Detention Schools: Severely Maladjusted Socially and Emotionally (Grades. 7-12) | 0 | 26 | 2.66 | 0 | 69 |
| 11. Compensatory Programs: Remediation for emotional educational difficulties (Grades: 7-12) | 92 | 2,583 | 1.83 | 168 | 4,727 |
| 12. Vocational Education[b] (Grades: 7-12) | 1,480 | 2,583 | 1.52[c] | 2,250 | 3,926 |
| 13. Basic Education (Grades: 7-12) | 24,015 | 20,643 | 1.28 | 30,739 | 26,423 |
| III. Subtotal | 25,827 | 26,326 | | 33,644 | 36,142 |
| IV. Grand Total | 60,849 | 69,107 | | 70,861 | 86,681 |
| V. Ratio | 1.00 | 1.00 | | 1.16 | 1.25 |

[b] Average enrollment equals 0.45 FTE in vocational courses and 0.55 FTE in basic courses.
[c] This would be 1.81 for equivalent full time enrollment in vocational education.

Column 4 of each table shows the index of average expenditure per pupil in each program in the districts included in this study. The unit value 1.00 is assigned to basic education in grades 1-6. This amount in the sample of districts was $750 per pupil. All pupils except those in vocational education are counted full time in the respective program.

In the vocational program, the pupils in the sample districts spend an average of 0.45 of their total course credit load in vocational courses and 0.55 in the basic courses. In effect the typical vocational curriculum in these schools is composed of 45 percent vocational work and 55 percent basic or general education. In comparing the average cost of pupils in the vocational program with those in the basic secondary program the index is computed as follows: $.45 \times 1.81 + .55 \times 1.28 = 1.52$. This index relates to the unit value of 1.00 for basic elementary grades 1-6. To compare average expenditure on vocational pupils with basic secondary pupils divide 1.52 by 1.28. The quotient 1.18 is the comparative index. The average expenditure per pupil in basic programs in grades 1-6 is $750; basic grades 7-12, $960; and vocational grades 7-12, $1,140. Thus the norm of excess cost per pupil enrolled in vocational programs above the basic secondary program in the sample districts is $180 per pupil.

Other indexes may be translated into excess costs in a similar manner. For example, the index of 1.40 for nursery school may be expressed as an extra or excess cost per pupil as .40 times the average expenditure per regular elementary pupil in grades 1-6. The amount is .40 times $750, or $300.

The detailed procedure for developing these cost indexes is shown in Early Childhood and Basic Elementary and Secondary Education, Special Study Number 1 of this project.[22] This procedure may be used as a guide in developing norms in any state.

The analysis of the three districts illustrated here is based on the categorization of the pupil population into broad educational program components. Two examples, the central city and the independent (isolated) district have relatively larger numbers of pupils with learning difficulties than the suburban district—based on diagnostic standards that could be applied throughout a state.

Thus, this analysis reveals differences among districts in the distribution of pupils among programs that are designed to meet the needs of all individuals. The aggregate index of need relative to the total pupil enrollment, expressed in cost units, is 1.27 for the central city, 1.27 for the independent district, and 1.16 for the suburban district.

These indexes represent the relationship of existing programs one to another and not the true measure of need. The estimates of total need are shown for each district in columns 3 and 6, where specific assumptions are made as to reasonable goals for operation by 1980. For example, in early childhood education, it is assumed that school districts will have: (1) parent programs with enrollments of parents of young children not in school equal to 1.5 times the pupil enrollment in nursery school, (2) nursery school enrollment equal to one-half the kindergarten enrollment, and (3) kindergarten enrollment equal to all 5-year-old children. The estimates of need for the other programs are based on the judgments of educational officials and diagnostic data in the sample of districts in this project.

The aggregate index of total estimated need in pupil units is greater in each case than the actual one in operation. The respective increases are: the central city from 1.27 to 1.38; the independent from 1.27 to 1.44; and the suburban from 1.16 to 1.25. These increases in the aggregate indexes give a measure of the gap between present programs and full accommodation of all pupils in the respective categories.

Detailed procedures for applying cost differentials to alternative state support models are set forth in Chapter 10 of this volume.

## PROJECTIONS OF NEEDS TO 1980

Educational activities have been classified in this study into broad program categories and other components for purposes of estimating current needs and also projected to 1980. The projections to 1980 are in reality the current needs with additional estimates to accommodate changes in the school population.

The projections are based on judgments of a wide sampling of educational leaders and other citizens, and the findings of research and experimentation in recent decades, concerning expanding educational objectives and needs of individuals in America. They should provide useful information for broad state and national policies and allocative decisions on education.

### TABLE 6-4

### PROJECTIONS OF NEEDS FOR INCREASED CURRENT OPERATING EXPENSES OF PUBLIC ELEMENTARY AND SECONDARY SCHOOLS FROM 1968–69 TO 1979–80

| | *Program* | *Estimated Increase in Percent of National Current Expenditure of $29 Billion* |
|---|---|---|
| 1. | Parent Education (For 3 million children: between 1/4 and 1/3 of all parents with children under 3 years of age) | .93% |
| 2. | Day Care Programs (4.49% of population under 6 years of age in 1980) | 2.32 |
| 3. | Nursery School: Children 3 and 4 years of age.<br>—High Demand—18.20%<br>—Medium Demand—14.06<br>—Low Demand | 8.38 |
| 4. | Kindergarten<br>—To change present programs from double session to single session day—3.80%<br>—To enroll 950,000 5-year-olds not in kindergarten in 1968–69—2.94%<br>— enroll all 5-year old population increase from 1968–69 to 1979–80—5.79% | 12.53 |
| 5. | Special programs for mentally and physically handicapped (Based on 100% increase in enrollments by 1980) | 2.30 |
| 6. | Special programs for pupils with severe social and emotional maladjustment (Based on serving twice as many pupils in 1980 as served in 1969) | 2.00 |
| 7. | Special remedial and compensatory instruction for pupils with abnormal learning difficulties (Estimated needs as percent increase over number served in 1969; Cities 300%; Suburbs 15%; Independents 85%) | 4.91 |
| 8. | Vocational programs (Based on estimated enrollments of three times the number of pupils in 1969) | 6.00 |
| 9. | Correction of imbalance for states below the national average expenditure per pupil in 1968–69 (8% using USOE data and 9% using NEA revised data) | 9.00 |
| 10. | Improvements in basic programs | 10.00 |
| 11. | Inservice programs for staff members to counteract professional obsolescence (Equivalent to 1/2 year leave with pay for each 6 years of service) | 4.00 |
| | TOTAL | 62.37% |

Source: McLure, William P. and Pence, Audra May. *Early Childhood and Basic Elementary and Secondary Education; Needs, Programs, Demands, Costs.* Special Study No. 1 of the National Educational Finance Project. Urbana, Illinois: Bureau of Educational Research, College of Education, University of Illinois, 1970. Pp. 118-20.

Note: These estimates are based on 1968–69 prices and operating expenditures in that year. They do not include estimates for inflation or deflation.

### TABLE 6-5

### Projected Current Operating Expenditures of Public Elementary and Secondary Schools by 1979–80[a]

| | *Base Year* | *Levels of Early Childhood Programs* | | | | | |
|---|---|---|---|---|---|---|---|
| | | *Minimum Demand* | | | *High Demand* | | |
| | *1968–1969* | *1969 Prices* | *2% Inflation* | *4% Inflation* | *1969 Prices* | *2% Inflation* | *4% Inflation* |
| 1. Amount in Billions | $29 | $47 | $57 | $69 | $50 | $60 | $73 |
| 2. Cumulative Percent Increase Above 1968–69 | | 62% | 98% | 138% | 72% | 107% | 152% |

[a] Inflation is compounded annually.

A summary[23] of projections by programs and other components of need is shown in Table 6-4. These estimates include adjustments for projected school age population. The total minimum estimate of current operating expenditures would increase 62 percent above the $29 billion[24] in 1968-69 to $49 billion at 1969 prices in 1979-80. The top increase would be 72 percent assuming a high demand for nursery education (3- and 4-year-old children). The estimated high demand would accommodate 6 million pupils of these ages rather than 2.8 million assumed for the minimum. This low demand would represent an increase from 8 percent of the 3-year-olds and 23 percent of the 4-year-olds enrolled in nursery school in 1968-69 to 27 percent and 41 percent respectively in 1969-70. The high demand would increase the 3-year-old enrollments to 52 percent of that age group and 77 percent of the 4-year-old children.

These estimates represent an absolute increase in the current operating expenses in 1968-69. Inflation will further increase the estimates. Table 6-5 shows how these estimates would be increased at two rates of inflation cumulative annually, one at 2 percent and another at 4 percent.

The data presented in Table 6-5 do not include estimates of costs for capital outlay or increases in the cost of transportation, adult education and the school food service program. If these items are included and if inflation continues at a rate of from 3 to 4 percent, it is possible that total school expenditures will be $70 to $75 billion by 1980 even with an average demand for educational services.

## SUMMARY

Adequate financing of education requires a structure of programs and other component parts that are functional in relation to the instructional and learning activities in the system.

This chapter presents a method of measuring differential cost of designated instructional programs in early childhood, elementary, and secondary school levels. The structure of program categories is compatible with sound principles of organizing instructional and learning activities. This method of program cost analysis has the following advantages: (1) provides a useful structure for officials in the local school district to evaluate programs, alternative options, and needs, (2) provides a basis for improving the equity in the distribution of state and federal funds to local school districts, and (3) provides an improvement in present procedures for interpreting the achievements and needs of the public schools to the citizens at large.

In addition to the operating costs of designated programs, there are supplementary related costs that must be treated adequately as special entities in a state finance plan. These include capital outlay, food service, transportation, correction for size of operational scale in extremely sparse areas, cost of living variation, and adult and continuing education.

The measurement of costs in this study is based on two considerations: (1) to improve the rationality in such a complex enterprise as public education, and (2) to provide methods for achieving the goal of equal educational opportunity for every child in America.

### FOOTNOTES

1. William P. McClure and Audra May Pence. *Early Childhood and Basic Elementary and Secondary Education—Needs, Programs, Demands, Costs.* National Educational Finance Project, Special Study No. 1. Urbana, Illinois: Bureau of Educational Research, College of Education, University of Illinois. 1970.

2. *Ibid.*, Ch. 3.

3. *Ibid.*, Ch. 4.

4. Richard A. Rossmiller, James A. Hale, and Lloyd E. Frohreich. *Educational Programs for Exceptional Children—Resource Configurations and Costs.* National Educational Finance Project, Special Study No. 2. Madison, Wisconsin: Department of Educational Administration, The University of Wisconsin. August 1970.

5. Arvid J. Burke, James A. Kelly, and Walter I. Garms. *Educational Programs for the Culturally Deprived.* National Educational Finance Project, Special Study No. 3. Albany, N. Y.: State University of New York at Albany, School of Education. 1970.

6. *Op. cit.*, McLure and Pence, Ch. 5.

7. *Ibid.*, pp. 98-100.

8. Erick L. Lindman. *Financing Vocational Education in The Public Schools.* National Educational Finance Project, Special Study No. 4. Los Angeles, California: Graduate School of Education, University of California. 1970.

9. J. Alan Thomas and William S. Griffith. *Adult and Continuing Education.* National Educational Finance Project, Special Study No. 5. Chicago: Midwest Administration Center, The University of Chicago. 1970.

10. *Op. cit.*, McLure and Pence, pp. 105-06.

11. *Op. cit.*, Thomas and Griffith.

12. Robert J. Garvue, Thelma G. Flanagan, and William H. Castine. *School Food Service and Nutrition.* National Educational Finance Project, Special Study No. 8.

13. *Ibid.*, Garvue, *et al.*, p. 222.

14. Dewey Stollar, Pupil Transportation. Chapter 9 in *Planning to Finance Education,* Volume 3. Gainesville, Florida: National Educational Finance Project. 1971.

15. W. Monfort Barr, K. Forbis Jordan, C. Cale Hudson, Weldell J. Peterson, and William R. Wilkerson. *Financing Public Elementary and Secondary School Facilities in the United States.* National Educational Finance Project, Special Study No. 7. Bloomington, Indiana: Bureau of Surveys and Administrative Services, School of Education, Indiana University. June, 1970.

16. For these estimates see McLure and Pence, pp. 118-19.

17. See McLure and Pence, p. 144.

18. *Op. cit.*, Barr, *et al.*

19. James L. Wattenbarger, Bob N. Cage, and L. H. Arney. *The Community Junior College: Target Population, Program Costs, and Cost Differentials.* National Educational Finance Project, Special Study No. 6. Gainesville, Florida: Institute for Higher Education, University of Florida. June 1970.

20. *Ibid.*, Wattenbarger, *et al.*

21. *Op. cit.*, McLure and Pence, Ch. 5.

22. *Ibid.*, McLure and Pence, Ch. 6.

23. Richard H. Barr and Betty J. Foster. *Fall 1968 Statistics of Public Elementary and Secondary Day Schools.* Washington, D. C.: U. S. Department of Health, Education, and Welfare, Office of Education. March 1969. OE-20007-68, and National Education Association Research Division. *Estimates of School Statistics: 1969-70.* Research Report 1969-R15. Washington, D. C.: National Education Association.

Note: For current operating expenses in 1968-69, the USOE document reports $29,842,077. The revised figure $29,040,075, reported by the NEA is used for purposes of projections.

## CHAPTER 7

# *Equalization Tendencies of Current School Finance Programs*

Before educational financing can be improved, one must first know the current status of educational finance and from this determine the strengths and weaknesses of the present system. Since public schools in the United States operate under 50 different governments, with a federal overlay, an assessment of current practice is no small task. The magnitude of the task becomes even more complex when, with preliminary examination, one discovers that within the fifty states there are over 400 different programs through which state school moneys are distributed and the federal government imposes an additional large number of categorical aid programs.

In order to assess all of these widely varying programs, the National Educational Finance Project designed studies which sought to establish at least three overall characteristics of state and federal programs: (1) the equalization intent of the subventions, (2) the method or formulas by which the funds were distributed, and (3) the equalization impact of the funds at both the state and local levels. Every finance program has both a purpose and a method for distribution. However, the avowed purpose of a finance program may not always be carried forth by the formula chosen to distribute the funds. State equalization or foundation programs, in particular, have sometimes been assumed to fiscally equalize among school districts when, in fact, little equalization of resources has taken place through the use of the formulas.

Underlying the entire status assessment of the National Educational Finance Project is the idea that resources must be rationally allocated both among the states and among local school districts within each state in order to provide equal opportunity for children to learn. This is to say that the dollars available for education should be related to the educational need of children and not to some accident of economic, social or geographical condition. With respect to school finance, a rational expectation is for funds to be distributed according to variations in educational needs and inversely proportional to the fiscal or economic ability of the local school district or state taxing area. Therefore, the primary questions with which the National Educational Finance Project was concerned emanated from the fundamental assumption that equality of resources is a necessary and reasonable starting point to accomplish equal educational opportunity. No other attempt was made to ascertain the relative benefits derived from the dollars expended in terms of establishment of an output-parity among school children.

With this in mind several basic questions immediately arise regarding the status of school finance. It was recognized that an assessment of educational finance practices was necessary in order to provide a basis for improving the present system. Equality of fiscal resources was the basic criterion within which several status studies were designed.

The questions examined are as follows: (1) Are state funds currently distributed with an equalization purpose? (2) What profiles of support are formed in school districts of the various states when local, state and federal sources of revenue are combined? (3) Do state school finance programs systematically favor or penalize either central cities, suburbs, independent cities or rural areas? (4) What impact do local nonproperty taxes have on the equalization of resources among school districts? (5) What is the relationship between revenue allocations and educational need of school districts when need is measured in terms of pupil achievement? (6) Does Title I, ESEA have a fiscally equalizing effect within states? and (7) Do the major federal programs for education have a fiscal equalizing effect among the fifty states?

Each of these questions was researched and published in Volume 4 of the National Educational Finance Project. The following is a synopsis of the findings.

## EQUALIZATION INTENT OF STATE SCHOOL FUNDS

If the intent or purpose of school funds is any yardstick, one could say that legislators are becoming more egalitarian in their views. This conclusion is based on a clear tendency of legislatures to increasingly appropriate money for education with at least patent motives of equalization. In terms of the stated legislative intent of state school finance programs, a higher percentage of funds is distributed today using some measure of fiscal equalization than was so distributed twenty years ago. Legislatures hold the equalization concept in greater esteem than in previous years and reflect such tendencies by including factors in school aid formulas which compensate for the lack of fiscal ability of school districts.

In 1949-50 the U. S. Office of Education reported that 44.9 percent of all state funds for education were allocated on an equalizing basis. In 1968-69 it is estimated that 77.5 percent of all state funds were distributed with some intent of fiscal equalization.

Other analysis indicates that state formulas tend more and more to recognize variations in educational needs. While many of the funds examined display rather vague legislative identification of educational needs and cost differentials, the preponderance of evidence indicates that the use of educational need variables is increasing. For example, in 1962-63 *variable* equalizing funds amounted to 61.7 percent of all state funds while in 1968-69 the use of educational need variables had increased to the extent that 66.8 percent of all funds had components recognizing educational need variables.[1]

These statistics suggest that most of the funds distributed at the state level are predicated on some legislatively perceived need, either fiscal or educational, presumably designed to create greater educational equality. This is not to say, however, that these modifications substantially promote equality among children. On the contrary, these percentages may be deceiving to the extent that state funds alone are only part of the educational finance picture. In a total system of state school finance, the local funds play a very large part. The disposition of taxing power to local school districts is critical to any conclusion regarding equal educational resource allocation.

## EQUALIZATION IMPACT OF ALL REVENUES

One of the simplest and most straightforward ways to analyze the impact of school funding procedures is to determine how much money each school district, in fact, receives from local, state and federal sources.

The very nature of the educational system of the United States which encompasses three levels of government lends itself to inequities. The creation of thousands of local school districts originally established a system of education with inherent wide disparities in financial ability. Enclaves of educational wealth and poverty continue to exist, particularly in states with very large numbers of small school districts. It has been pointed out that variations in assessed valuation of property exist in some states exceeding 10,000 to 1. Other states have variations in assessed valuation on the order of 500 to 1 and even states organized into county districts, such as Florida, have wealth variations ranging from 5 to 1 to 10 to 1. Of course, Hawaii has a state system, therefore, it avoids the problems of school support associated with small taxing units.

With these great differentials in wealth, it is not surprising that so much of the discussion of educational finance is concerned with ways and means to promote equal resource allocation. Thus, a fundamental question is: First, does a relationship seem to exist between financial ability measured in terms of property values and resources available for education and; second, what resources, local, state or federal, contribute to the resultant patterns?

In examining these questions, Briley selected seventeen school districts of at least 1500 pupils in average daily attendance, ranging from the poorest to the wealthiest with selected percentile intervals. Among the seventeen districts, the two largest districts in each state were included. The seventeen districts were profiled using equalized valuation or assessed valuation per pupil as the vertical axis and revenues per pupil as the horizontal axis.[2]

Thus constructed, the profile showed that if all school districts in a state would make the same effort in proportion to their ability, the wealthiest districts would naturally raise a greater amount of money per pupil from local property taxes than the districts of least wealth. That is, assuming that property is assessed in all districts at the same percent of true value and assuming that all districts levy the same local tax rate, the amount of local tax revenue per pupil would be perfectly correlated with the amount of wealth per pupil. This fact is demonstrated in Figure 7-1, which illustrates the profile of a hypothetical state, not a real state. An examination of the actual profiles of 49 states shows that the amount of revenue per pupil from local taxes is not perfectly correlated with wealth per pupil. However, the profiles show that the effort in proportion to ability is much more nearly uniform in some states than in other states. For example, Figure 7-2 shows that in the State of Arkansas, the districts of least wealth were generally raising considerably less money from local taxes per pupil than the districts of greatest wealth. This is to be expected if the districts of a state are making somewhat near equal effort in proportion to their ability.

However, the generally expected pattern of lower ability school districts raising less money does not always prevail. In many instances, poorer school districts raised greater amounts of funds by simply putting forth greater effort. The profile of the State of Vermont, for example, shown in Figure 7-3 shows the effect of this phenomenon. In Vermont the percentage of state aid is relatively low and the impact of local financing is substantial. With this type of arrangement, the educational fate of children is left largely to local prerogative. In the particular instance of the Shelburne school district, the local taxpayers are putting forth substantial effort, greater in fact than districts with more ability, providing the Shelburne children with about $1,100 revenues each. On the other hand, Milton school district makes much less effort and relegates its children to an educational program of less than $500 per pupil.

Such profiles are subject to varying interpretations especially when one state is compared to another, but when local, state and federal revenues are compared to the financial ability of the school districts, certain conclusions are obvious. By comparing local revenues per pupil to financial ability (assessed valuation of property per pupil) most states showed significant positive correlations. This means that the wealthier the district the greater its revenues. This is not surprising since a school district with one-tenth the ability of a wealthier district must put

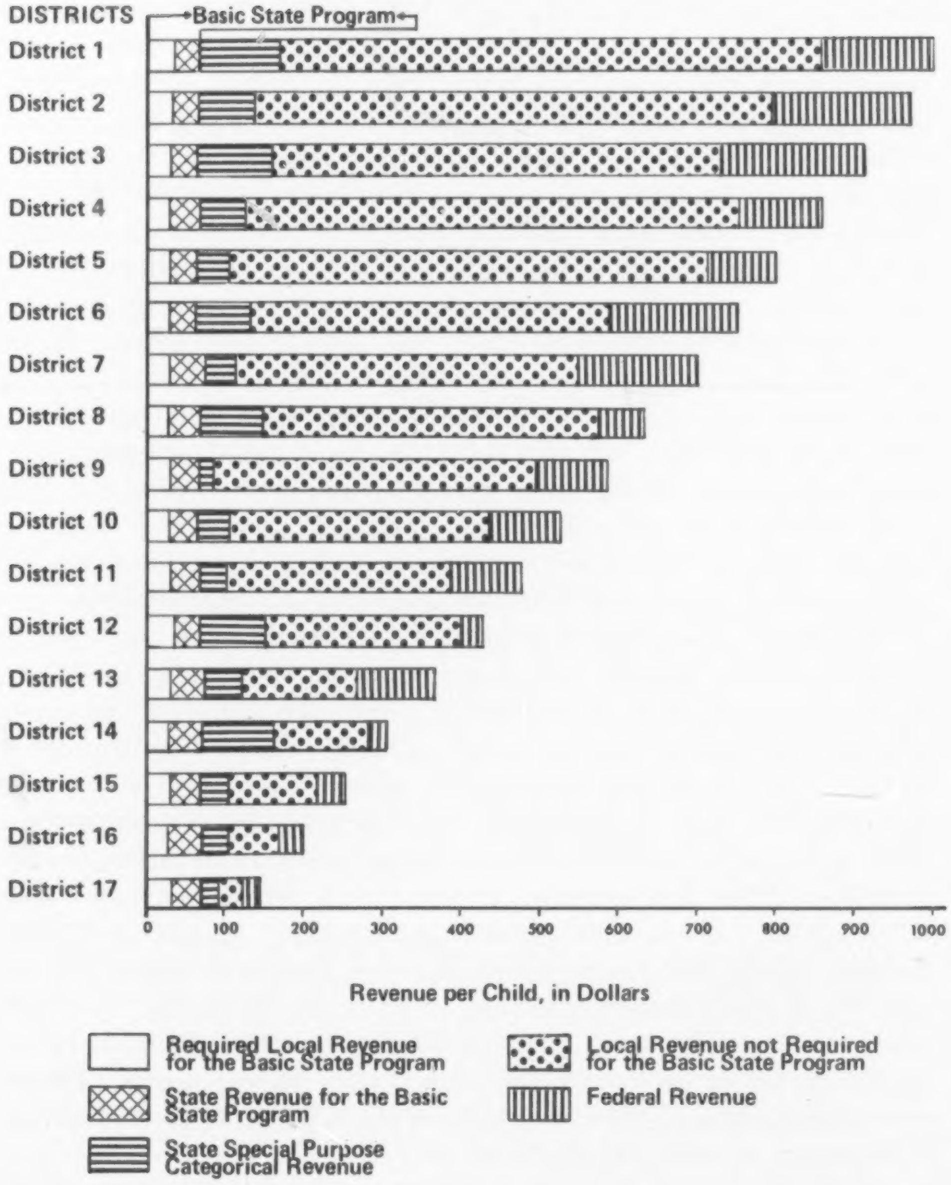
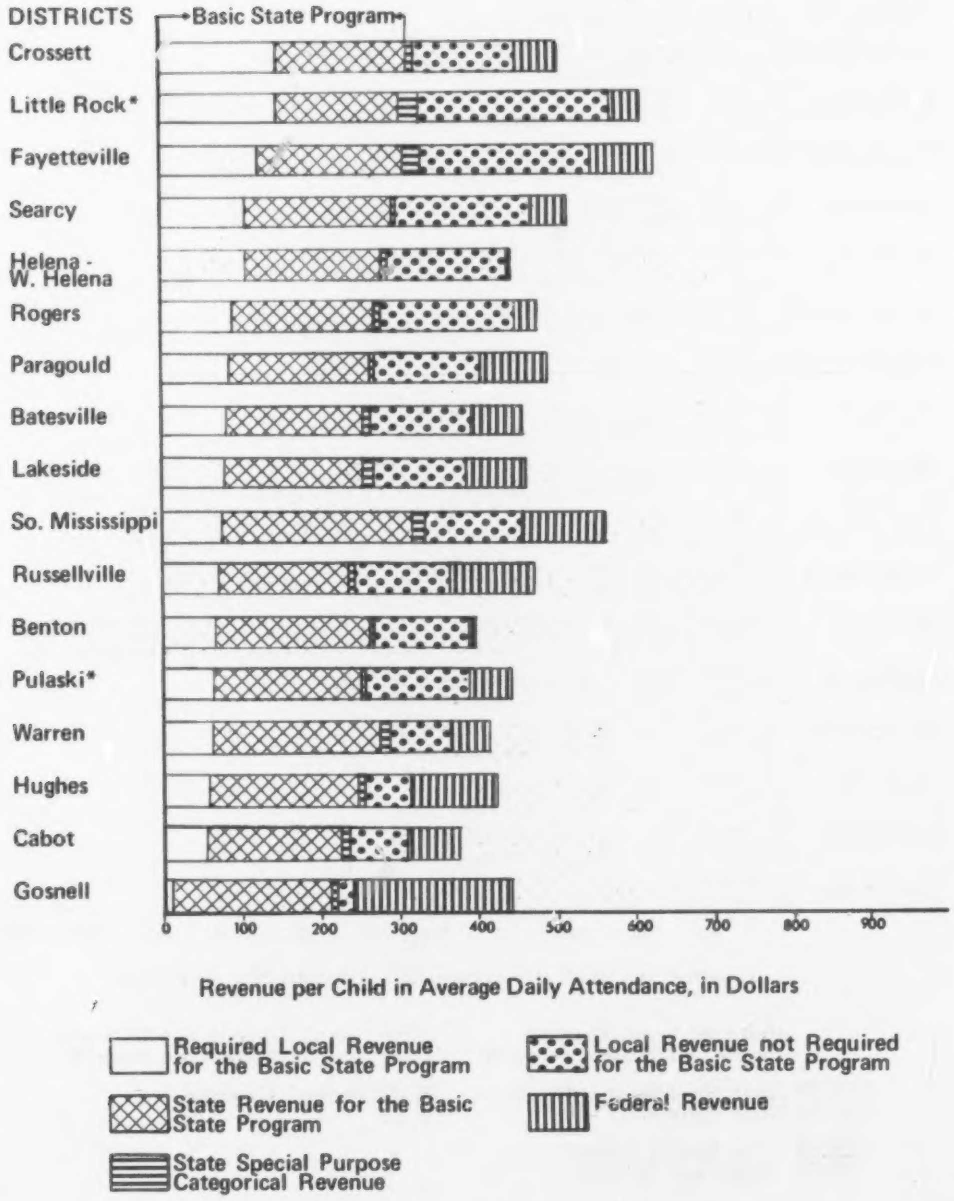
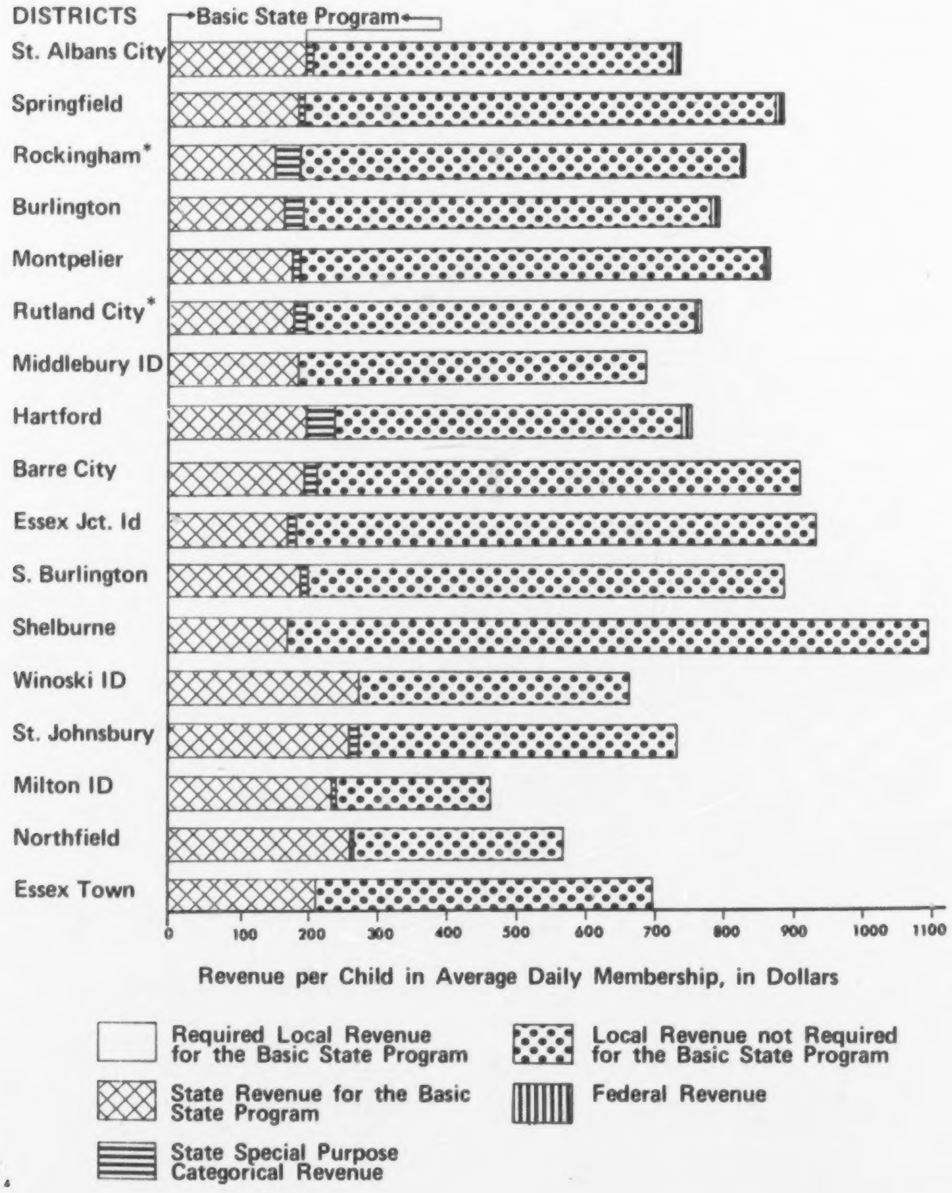


FIGURE 7-1 An Example of a Bar Graph for Representing Revenues Available to Selected School Districts



* The two largest school districts in terms of average daily attendance.

FIGURE 7-2 Revenues Available to Selected School Districts (Having 1500 and Above in ADA and Ranging from the Most to the Least Wealthy) in Arkansas for 1968 - 1969



* The two largest school districts in terms of average daily membership.

FIGURE 7–3 Revenues Available to Selected School Districts (Having 1500 and Above in ADM and Ranging from the Most to the Least Wealthy) in Vermont for 1968 - 1969

forth ten times the effort to raise equivalent dollars. The positive relationship between local revenues and fiscal ability was significant at at least the .05 level in 42 of the 49 states. (See Table 7-1).

An examination of state revenues separately reveals that basic state revenues, the major portion of all state funds, are usually inversely proportional to the wealth of the school districts. The inverse correlation was significant at at least the .05 level in 36 of the states, indicating that these state funds generally equalize.

With regard to federal funds, most states showed correlations tending to equalize but only 13 states showed federal funds significantly equalizing at the .05 level.

Acknowledging that selection of districts of over 1500 average daily attendance may tend to wipe out much disparity in itself, the fact, nevertheless, remains that the total system of school finance in the states overcomes to a considerable extent the vast wealth differentials among school districts. When local, state and federal revenues are combined we see that in few instances are there school district revenue disparities amounting to as much as 3 to 1 while the fiscal ability differential is much greater. This is not to say, however, that more equalization of resources is not needed, for even a 2 to 1 revenue differential *can* mean that the tri-level governmental system of education condemns a child to one-half the educational services of a child in a more affluent area of the state or county.

## ALLOCATIONS TO CERTAIN TYPES OF DISTRICTS

One of the most widely publicized issues of recent years has been the struggle of large city school districts to obtain greater financial resources. Charges have been made that rural oriented legislatures and state departments of education have been insensitive to the problems of the cities. School districts in suburbia and exurbia have been generally featured as having unlimited resources with which to provide affluent children with superior educational programs. Rural areas have been largely ignored in the dispute, but various studies have pictured rural areas as having relatively trouble free, pastoral educational climates. Suburban and rural schools, however, have their own advocates who insist that problems of migration and poverty have as great an impact on some of these areas as on the cities.

### TABLE 7-1

### ANALYSIS OF FINANCIAL ABILITY[a] AND REVENUE RECEIPTS[b] FOR SELECTED SCHOOL DISTRICTS WITHIN EACH STATE

| | | | *Correlations Between Sources of Revenue Per Pupil and Local Financial Ability*[e] | | | |
|---|---|---|---|---|---|---|
| *State* | *Financial Ability Ratio*[c] | *Total Revenue Per Pupil Ratio*[d] | *Local Revenue* | *Basic State Revenue* | *State Categorical Revenue*[f] | *Federal Revenue* |
| Alabama | 3.79 | 1.60 | 0.31 | -0.07 | -0.23 | -0.20 |
| Alaska | 2.51 | 1.96 | 0.15 | 0.03 | -0.42 | -0.58 |
| Arizona | 7.41 | 1.38 | 0.51* | -0.67** | 0.01 | -0.14 |
| Arkansas | 10.98 | 1.68 | 0.94** | -0.47 | 0.55* | -0.52* |
| California | 23.76 | 1.95 | 0.94** | -0.72** | -0.23 | -0.38 |
| Colorado | 2.50 | 1.84 | 0.69** | -0.96** | 0.62** | -0.18 |
| Connecticut | 5.69 | 1.98 | 0.64** | 0.50* | 0.35 | -0.01 |
| Delaware | 6.39 | 2.26 | 0.84** | 0.40 | 0.09 | -0.23 |
| Florida | 3.18 | 1.50 | 0.89** | -0.74** | -0.32 | -0.43 |
| Georgia | 4.65 | 1.69 | 0.79** | -0.83** | -0.55* | -0.13 |
| Idaho | 2.70 | 1.67 | 0.89** | -0.70** | -0.04 | -0.39 |
| Illinois | 20.06 | 2.10 | 0.62** | -0.87** | 0.14 | -0.29 |
| Indiana | 17.17 | 3.84 | 0.95** | -0.92** | 0.50* | 0.48* |
| Iowa | 7.07 | 1.80 | 0.89** | -0.36 | -0.32 | -0.18 |
| Kansas | 3.75 | 2.01 | 0.80** | -0.32 | 0.07 | -0.50* |
| Kentucky | 8.60 | 1.47 | 0.89** | -0.78** | 0.07 | -0.74** |
| Louisiana | 52.70 | 2.46 | 0.94** | -0.90** | -0.12 | -0.30 |
| Maine | 11.16 | 2.41 | 0.70** | -0.52* | -0.07 | -0.56* |
| Maryland | 2.74 | 1.50 | 0.92** | -0.83** | -0.21 | -0.51* |
| Massachusetts | 10.35 | 2.20 | 0.87** | -0.42 | 0.59* | -0.25 |
| Michigan | 30.04 | 2.27 | 0.85** | -0.94** | 0.17 | 0.13 |
| Minnesota | 7.40 | 1.51 | 0.84** | -0.97** | -0.34 | 0.21 |
| Mississippi | 5.81 | 1.63 | 0.45 | -0.54* | -0.88** | -0.25 |
| Missouri | 25.12 | 3.90 | 0.98** | -0.51* | -0.19 | -0.45* |
| Montana | 3.07 | 2.13 | 0.74** | -0.66** | 0.14 | -0.23 |
| Nebraska | 5.18 | 1.24 | 0.67** | -0.22 | 0.27 | -0.50* |
| Nevada | 2.72 | 1.31 | 0.96** | -0.91** | -0.18 | -0.66** |
| New Hampshire | 4.49 | 1.85 | 0.37 | -0.51* | -0.34 | -0.21 |
| New Jersey | 10.49 | 1.66 | 0.19 | -0.45 | -0.37 | -0.21 |
| New Mexico | 14.26 | 1.62 | 0.65** | 0.22 | 0.12 | 0.04 |
| New York | 10.55 | 1.62 | 0.86** | -0.93** | -0.36 | -0.09 |
| North Carolina | 3.60 | 1.54 | 0.47 | -0.41 | -0.48 | -0.74** |
| North Dakota | 2.15 | 1.80 | 0.64** | 0.27 | 0.50* | -0.12 |
| Ohio | 10.68 | 2.11 | 0.95** | -0.72** | -0.34 | -0.04 |
| Oklahoma | 4.42 | 1.38 | 0.94** | -0.83** | -0.10 | -0.46 |
| Oregon | 2.75 | 1.40 | 0.26 | -0.74** | 0.02 | 0.63** |
| Pennsylvania | 10.65 | 1.78 | 0.95** | -0.87** | -0.65** | 0.22 |
| Rhode Island | 2.40 | 1.94 | 0.58* | -0.74** | 0.12 | -0.56* |
| South Carolina | 9.21 | 1.54 | 0.90** | -0.34 | 0.50* | -0.12 |
| South Dakota | 12.89 | 1.75 | 0.88** | -0.83** | 0.35 | -0.68** |
| Tennessee | 3.74 | 1.71 | 0.61** | -0.69** | -0.13 | -0.29 |
| Texas | 84.52 | 2.65 | 0.97** | -0.79** | -0.09 | -0.46 |
| Utah | 8.55 | 1.82 | 0.98** | -0.90** | -0.15 | 0.81** |
| Vermont | 2.81 | 2.39 | 0.50* | -0.72** | 0.41 | 0.56* |
| Virginia | 6.79 | 2.31 | 0.91** | -0.75** | 0.17 | -0.16 |
| Washington | 11.76 | 1.37 | 0.53* | -0.75** | 0.36 | -0.20 |
| West Virginia | 3.63 | 1.73 | 0.90** | -0.75** | 0.14 | -0.52* |
| Wisconsin | 3.58 | 1.55 | 0.90** | -0.82** | 0.43 | -0.38 |
| Wyoming | 3.63 | 1.63 | 0.95** | -0.88** | 0.20 | -0.54* |

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[a] The financial ability measures employed were those mandated by each state for local district participation in the basic state program. [b] Revenues were considered in terms of local, basic state, state categorical and federal. [c] Financial ability ratio represents the quotient between the most able and least able districts within the state. [d] The ratio of total revenue per pupil received by the district with the highest amount when compared with the district which received the least amount. [e] Simple correlation coefficients between each revenue category and local financial ability.

*Significant at the 0.05 level. **Significant at the 0.01 level.

This controversy among types of school districts is not new. With the rise of state school equalization programs in the 1930 and '40's, large cities and smaller independent cities opted for local taxation as the method of school support, generally opposing efforts to redistribute educational resources through state foundation programs. The decline of the "preeminence" of the cities has led to a radical change in their posture with regard to state equalization programs.

There is much evidence that indicates that the present plight of the central cities was created in considerable part by the failure of the states and the federal government to equalize educational opportunity among and within the states. Historically, the southern states, primarily because of poverty relative to the rest of the nation, have provided far more limited educational opportunities than other regions of the nation. Intrastate problems of poverty are even more pronounced in most regions than interstate problems. This has been particularly true in the rural areas. There have been major improvements in educational programs in the southern states in recent years, but the disadvantaged migrants from the southern states who now are creating many of the problems of the core cities of the north were produced, and are still being produced, in rural areas of the south and midwest. Sound public policy dictates that adequate educational opportunities be made available in school districts of all population classifications, in all regions of the nation.

All of this leads to the very fundamental question: Do present systems of school finance tend to favor or penalize any particular type of school district? The National Educational Finance Project examined this issue with respect to four types of school districts: central or core city districts, suburban school districts, independent city school districts, and rural school districts.[3] The investigation involved ten states: Alabama, Colorado, Georgia, Michigan, Missouri, New York, Ohio, Oregon, Texas, and Wisconsin. School districts were selected from these states which included the largest city in each state along with random samples of suburban, independent and rural districts—a total of 445 school districts were selected.

With respect to fiscal ability or wealth measured in terms of equalized assessed valuation per pupil in average daily attendance, the study shows that the central or core cities have the greatest wealth of any of the four categories. In eight of the

TABLE 7-2

EQUALIZED ASSESSED VALUATION OR ASSESSED VALUATION PER PUPIL IN ADA FOR SELECTED POPULATION CLASSIFICATIONS OF EACH STATE 1968–1969

| | *Central City* | | *Suburbs* | | *Independent City* | | *Rural* | |
|---|---|---|---|---|---|---|---|---|
| *State* | *Amount* | *Rank Within State* | *Amount* | *Rank Within State* | *Amount* | *Rank Within State* | *Amount* | *Rank Within State* |
| Alabama | $ 8,711 | 2 | $ 8,725 | 1 | $ 4,711 | 3 | $ 4,172 | 4 |
| Colorado | 14,640 | 1 | 7,172 | 4 | 7,338 | 3 | 7,983 | 2 |
| Georgia* | 45,199 | 1 | 29,508 | 2 | 27,508 | 3 | 25,157 | 4 |
| Michigan* | 18,205 | 3 | 20,980 | 1 | 19,073 | 2 | 13,670 | 4 |
| Missouri | 12,044 | 1 | 11,673 | 2 | 9,890 | 3 | 6,395 | 4 |
| New York* | 45,513 | 1 | 33,031 | 2 | 27,801 | 3 | 21,943 | 4 |
| Ohio | 20,219 | 1 | 18,248 | 2 | 14,083 | 4 | 14,288 | 3 |
| Oregon* | 47,604 | 1 | 31,827 | 4 | 41,970 | 3 | 42,189 | 2 |
| Texas | 23,244 | 1 | 17,200 | 2 | 15,983 | 3 | 12,956 | 4 |
| Wisconsin | 38,278 | 1 | 29,128 | 3 | 35,162 | 2 | 26,308 | 4 |
| Average Rank Within State | | 1.2 | | 2.3 | | 2.9 | | 3.5 |

*Equalized Assessed Valuation.

states, the central city ranked highest in valuation per pupil and in the other two states the suburbs ranked highest in valuation per pupil. Rural districts ranked the lowest in property valuation per pupil in seven of the ten states. (See Table 7-2)

School districts within each population class varied widely in valuation per pupil in most states. In five of the ten states studied the suburban district with the highest per pupil valuation had more than three times the valuation per pupil of the suburban district with the lowest valuation. Similarly, great variations appeared in the wealth among rural school districts. In seven of the states, the rural district with the highest valuation had three or more times the valuation per pupil than the district with the lowest valuation.

All cities are not rich nor are all of them poor; great variation exists in rural wealth, and the fiscal ability of suburbs and independent smaller cities varies substantially. Corroboration of these findings can be found by comparing the individual gross adjusted income per pupil for various cities around the United States. For example, San Francisco and Houston are wealthy, having $27,699 and $25,890 per pupil respectively, while the much poorer cities of Indianapolis and Newark have only $10,504

TABLE 7-3

TOTAL LOCAL, STATE, AND FEDERAL REVENUE PER PUPIL IN ADA FOR SELECTED POPULATION CLASSIFICATIONS OF EACH STATE 1968-1969

| | *Central City* | | *Suburbs* | | *Independent City* | | *Rural* | |
|---|---|---|---|---|---|---|---|---|
| *State* | *Amount* | *Rank Within State* | *Amount* | *Rank Within State* | *Amount* | *Rank Within State* | *Amount* | *Rank Within State* |
| Alabama | $ 405 | 3 | $ 391 | 4 | $ 421 | 1 | $ 417 | 2 |
| Colorado | 836 | 1 | 619 | 4 | 665 | 2 | 627 | 3 |
| Georgia | 757 | 1 | 551 | 2 | 496 | 4 | 505 | 3 |
| Michigan | 833 | 2 | 875 | 1 | 824 | 3 | 680 | 4 |
| Missouri | 851 | 2 | 875 | 1 | 746 | 4 | 752 | 3 |
| New York | 1,297 | 2 | 1,370 | 1 | 1,175 | 3 | 1,131 | 4 |
| Ohio | 734 | 1 | 546 | 3 | 588 | 2 | 529 | 4 |
| Oregon | 812 | 3 | 837 | 2 | 797 | 4 | 865 | 1 |
| Texas | 647 | 1 | 546 | 4 | 595 | 2 | 586 | 3 |
| Wisconsin | 816 | 2 | 897 | 1 | 769 | 4 | 805 | 3 |
| Average Rank Within State | | 1.5 | | 2.3 | | 2.9 | | 3.0 |

and $10,323 per pupil. Briley's profiles, discussed previously in this chapter, also show that wide variation exists among cities when wealth is measured in terms of equalized assessed valuation of property. Hickrod has pointed out that not only is there great inequality now existing among suburbs, but there is an increasing inequality among suburbs.[4]

By disregarding wealth and comparing the actual revenues of the central city, suburb, independent city, and rural districts, it may be determined whether certain types of districts are, in fact, favored or penalized by current finance practices. When all revenues, local, state and federal, were combined it was found that the central cities ranked highest. Following central cities came suburbs, independent cities and finally rural areas. Breaking down the sources of funds, it was found that state finance programs tended to allocate proportionately greater resources to the rural areas than to any of the other categories. Suburbs and independent cities were tied for second and the central city received the least amount from state sources. This result was not unexpected since the central cities ranked highest in wealth and in order to fiscally equalize, state aid formulas give the wealthiest districts the least funds per pupil. (See Table 7-3)

When both local and state funds are totalled, the rural areas having the lowest local fiscal ability fell back to last in revenues among the four types of school districts. Suburbs receive the greatest amounts of dollars per pupil if only local and state funds are considered, followed by central cities and then independent cities.

These data suggest a rather simple conclusion with regard to both wealth and revenues by type of school district, and that is *such classifications of districts are not rational criteria on which to base financing practice.* Generalizations about the wealth of all cities, suburbs or rural areas are not valid measures for allocating tax resources. The obvious educational needs of some cities and some rural areas suggest that fiscal needs be assessed not in terms of some gross population classification but in terms of numbers of children with varying educational needs, and costs and relative local wealth. Averages of wealth and revenues do not adequately identify or compensate for the special needs of individual children which are found in different percentages and numbers in all types of school districts.

## LOCAL NONPROPERTY TAXES AND EQUALIZATION

Several legislatures in recent years have reacted to the rising costs of education by providing authority for the levy of local nonproperty taxes. By 1968-69, twenty-two states and the District of Columbia authorized the use of local nonproperty taxes by local school districts. Even with this apparently broad use of local nonproperty taxes such taxes account for less than three percent of all local taxes collected for school districts.

With such small reliance on nonproperty taxes, one might ask, "Why the concern?" The answer is that the study of local nonproperty taxes is important not for their current impact but for their potential impact on the equalization of school revenues among school districts. Potentially, state legislatures could increasingly authorize the use of local nonproperty taxes, thereby shifting taxing discretion to locally elected officials and by so doing avert the political stigma of having to directly raise state taxes.

In analyzing this particular issue, a National Educational Finance Project study found that there was a significant positive correlation between local nonproperty tax revenues per pupil and property valuation per pupil in four of the seven states selected

TABLE 7-4

MEAN REVENUE PER PUPIL FROM LOCAL NONPROPERTY TAXES AND RANK AMONG TYPE OF DISTRICTS 1968–69

| | *Mean Revenue Per Pupil in Average Daily Attendance from Local Nonproperty Taxes and Within State Rank* | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *State* | *Rural Districts* | *Rank* | *Independent City Districts* | *Rank* | *Suburban Districts* | *Rank* | *Central City Districts* | *Rank* |
| Alabama | $ 15.24 | 2 | $ 18.03 | 1 | $ 14.11 | 3 | $ 7.00 | 4 |
| Kentucky | 26.44 | 4 | 27.74 | 3 | 89.05 | 2 | 103.01 | 1 |
| Louisiana | 40.12 | 4 | 47.53 | 3 | 81.02 | 1 | 73.11 | 2 |
| Maryland | 63.55 | 4 | 96.57 | 3 | 100.92 | 1 | 97.43 | 2 |
| New York | 6.15 | 3 | 5.03 | 4 | 15.06 | 2 | 65.05 | 1 |
| Pennsylvania | 84.97 | 4 | 87.68 | 3 | 88.88 | 2 | 101.30 | 1 |
| Tennessee | 25.19 | 4 | 50.73 | 3 | 71.12 | 2 | 74.31 | 1 |
| Average Rank | | 3.4 | | 2.9 | | 1.9 | | 1.7 |

for the study.[5] In the other three states almost no relationship existed between nonproperty and property tax revenues.

When school districts were classified into central city, suburban, independent city, and rural districts (all districts of 1500 ADA and above) it was found that in five of the seven states studied, the rural districts received the least amount of revenue per pupil from local nonproperty taxes and in four of the seven states, the central city received the most revenue. The average ranking for seven states showed that the central city school districts on the average receive more revenue per pupil from local nonproperty taxes followed in order by suburban, independent city and rural school districts. (See Table 7-4)

While the above data show the impact on types of school districts of local nonproperty taxes *actually levied*, the *potential impact* is illustrated by a closer examination of one of the states in the group. In Kentucky, school districts were given the authority by the legislature to levy any one of three permissive local nonproperty taxes—occupational, utility or excise tax. Although several districts in the state did not levy any of the taxes, the potential of the taxes on equalization is striking. For example, with the occupational tax, one of the wealthiest districts in the state would receive $56 per pupil in ADA while the poorest district in the state would receive only $6. The ratio here of 9 to 1 tax potential created an even greater disparity than did the tax potential from property taxes which in this particular case was $40,291 to $7,575; a ratio of a little over 5 to 1. The excise tax's potential yield in the same wealthy district was $51, and was only $3 in the poor district, while the utility tax potential was $33 per pupil in ADA in the more affluent district and only $2 in the poorer district.

These data suggest that the use of local nonproperty taxes is generally a bad omen for equalization of financial resources throughout a state. One solution to this problem, if such taxes are levied, is to charge these revenues back against the state school aid allotment, thus creating a kind of equalized locally collected taxing system. Generally, however, such charge backs are not utilized and the wealthy trading center districts of a state obtain an unmitigated fiscal advantage over less fortunate areas of the state. Such districts can use sales taxes, for example, to shift a part of their tax incidence to persons from less wealthy districts who come to cities to trade. This is the reverse of financial equalization. Furthermore, the levy of local sales and income taxes by large, wealthy urban and suburban districts may hinder the state in levying such taxes because of the political opposition of members of the legislature from the areas profiting locally from the levy of such taxes. This could result in a shortage of state revenue which would reduce the power of the state to discharge its responsibility for equalizing educational opportunity within the state.

## EDUCATIONAL ACHIEVEMENT AS A MEASURE OF EQUALIZATION

Heretofore in this chapter, equalization has been discussed in terms of the revenues received or the fiscal wealth potential of school districts. The wealth of a school district can however, be measured in terms other than dollars, an alternative can measure the school districts' or communities' status and potential in terms of its educational capital. The implication is that school finance programs should not only be adjusted to compensate for deficiencies in a school districts fiscal ability, but programs should be modified to account for the educational need differentials among children.

One means of identifying educational needs is through the use of achievement tests. Acknowledging the shortcomings of the various achievement tests, they nevertheless provide at least one method of ascertaining justifiable educational needs of children and school districts. Certainly it would be difficult to deny that achievement tests are not, at least, one strong indicator of educational need. We, therefore, assume that standardized tests are one satisfactory surrogate for certain school objectives and that low school achievement is highly associated with cultural disadvantages and low socio-economic level.

With these rather sound assumptions as our basis for comparison, we then can say that if districts with low achievement levels have less money available per pupil than districts with high achievement levels, then educational opportunity is not being equalized but disequalized.

It is quite reasonable to expect that under any system of school finance districts with low achieving children should receive at least resource inputs equivalent with districts with high achieving children. Is there an equalizing or disequalizing relationship between educational need measured in terms of achievement and revenues for education? This question was answered by a National Educational Finance Project study which compared the finance programs, local, state, and Title I, ESEA in eight states with statewide uniform achievement tests.[6] This study concluded the following:

1. Local revenues do not equalize educational opportunity for the culturally different pupils. In general, the districts with the lowest achievement levels, and the greatest concentrations of culturally disadvantaged have the least local revenue available per pupil.
2. In all but two of the eight states studied, there is but little indication that present state formulas make adequate provision for funding high cost compensatory programs.
3. Title I, ESEA, funds more than any other revenue source considered in this study are allocated to those districts where pupils had the greatest educational need as reflected by mean achievement test scores.
4. Local and state revenues combined were not significantly reaching those districts with the greatest educational need as reflected by mean achievement test scores.

   The amount of funds expended from the non-equalizing revenue sources tends to lessen the impact of revenue equalization programs where they do exist. For example, although Title I revenue allocations were effective in reaching those districts whose pupils had the lowest mean achievement scores, Title I funds accounted for no more than 11.48 percent of the combined local, state and Title I revenue allocations in any of the eight states studied and they comprised less than three percent of total revenue in six states. When combined revenue allocations (Title I, local, and state) were correlated with achievement test data, the inverse relationship between Title I allocations and the achievement test variables was reversed in six of the eight states.

5. Achievement test scores appear to be adequate identification criteria for defining those local school districts with a high concentration of children from low-income families. This generalization was supported by the fact that, considering that Title I allocations were made on the basis of low family income levels, inverse relationships were found in every instance between Title I allocations and the reading achievement test results from testing programs conducted independently of Title I programs. Therefore, it seems logical to conclude that low mean test scores provided evidence of concentrations of low-income families.
6. If disparities are to be effectively reduced, either the states must adapt their allocation formulas to allow more effective identification of target populations of the culturally different, thereby assuming a larger role in compensatory funding, or Title I, ESEA must be substantially increased beyond the present level of funding.

## FISCAL EQUALIZATION EFFECT ON TITLE I, ESEA

From the study cited above, it is clear that the method of distributing funds used in Title I, ESEA, is an effective means of identifying school districts with low achieving children. A related question is whether Title I is also concentrating on school districts with low fiscal ability? In order to at least partially answer this question the National Educational Finance Project selected nine states and compared the wealth of each of the counties in these states with the Title I allocations for the counties.[7]

This study found that: Title I allocations had a tendency to equalize resources among the counties within most of the nine selected states. Eight of the nine selected states had significant inverse relationships between both Title I allocation variables (per child enrolled and per school-age child) and effective buying income per school-age child. Even though the correlation with property values was somewhat less impressive, five of the nine selected states had significant inverse relationships between Title I allocations per school-age child and adjusted assessed valuation per school-age child.

Such equalizing relationships between allocations and wealth do not establish that Title I is being utilized effectively locally, but they do strongly suggest that the Title I allocation formula is tending to reach the appropriate target populations, the areas of greatest educational need and thereby greatly enhances equalization of opportunity.

## FOOTNOTES

1. Kern Alexander, Oscar Hamilton and Douglas Forth, "Classification of State School Funds", *Status and Impact of Educational Finance Programs*, Vol. 4, National Educational Finance Project, 1971, pp. 29-47.

2. William P. Briley, "Variation Between School District Revenue and Financial Ability", *Status and Impact of Educational Finance Programs*, Vol. 4, National Educational Finance Project, 1971, pp. 49-118. (See this source for profiles of all states).

3. Roe L. Johns and James A. Burns, "Comparison of Revenues for Different Population Classifications of School Districts", *Status and Impact of Educational Finance Programs*, Vol. 4, National Educational Finance Project, 1971, pp. 193-203.

4. G. Alan Hickrod and Cesar M. Saludao, *Increasing Social and Economic Inequalities Among Suburban Schools*, The Interstate Printers and Publishers, Danville, Illinois, 1969.

5. Duane O. Moore, "Local Nonproperty Taxes for Schools", *Status and Impact of Educational Finance Programs*. Vol. 4, National Educational Finance Project, 1971, pp. 209-221.

6. Donald S. Van Fleet and Gerald Boardman, "The Relationship Between Revenue Allocations and Educational Needs As Reflected by Achievement Test Scores", *Status and Impact of Educational Finance Programs*, Vol. 4, National Educational Finance Project, 1971, pp. 293-317.

7. John F. Wagner and Dewey Stoller, "Intent and Effect of Title I ESEA in the Financial Equalization of Public Elementary and Secondary Education", *Status and Impact of Educational Finance Programs*, Vol. 4, 1971, pp. 319-336.

8. Edgar H. Bedenbaugh and Kern Alexander, "Financial Equalization Among the States from Federal Aid Programs", *Status and Impact of Educational Finance Programs*, Vol. 4, 1971, pp. 251-291.

# CHAPTER 8

# Federal Responsibilities for Financing Educational Programs

Since the founding of the Republic, the role of the Federal Government in the field of education has been the subject of recurring controversy. While Congress is empowered to "levy and collect taxes . . . for the common defense and general welfare of the United States," education is not one of the powers explicitly delegated to Federal Government. However, in recent years the general welfare clause has been interpreted broadly enough to permit effective participation in the field of education by the Federal Government. This interpretation, unfortunately, did not immediately usher in a period of effective participation in education by the Federal Government. Instead, it ushered in a prolonged controversy between advocates of federal categorical aids for education and advocates of federal general support for public schools.

In 1931, the National Advisory Committee on Education, appointed by President Hoover, issued a report entitled "Federal Relations to Education." In this report, the Committee declared that the American people are justified in using their federal tax system to give financial aid to education in the states, provided they do this in a manner that does not delegate to the Federal Government any control of the social purposes or specific processes of education. The Committee also emphasized that federal funds should be granted to the states to aid education as a whole and not as special grants for the stimulation of particular types of training, and that the Federal Government should render large "intellectual assistance" to the states in matters of education through scientific research.

This report, issued in 1931, suggested criteria which would be relevant today. A few years later, in 1938, a new committee appointed by President Roosevelt gave its views concerning the role of the Federal Government in education. The report of the United States Advisory Committee on Education stated that grants should be made available to the states for "all types of current operating expenses for public elementary and secondary schools"; that the states should be permitted to use part of their federal funds for books, transportation, and scholarships for children attending both public and non-public schools; and that the American people would rightly object to any attempt to use the Federal aid as a means of controlling the content or processes of education in school.

These and subsequent studies emphasized the need for general purpose grants to states to supplement state and local school tax revenues. They sought to minimize federal direction and control of the educational process. Despite these recommendations for general purpose grants for public education, federal participation in education during the past fifteen years has moved rapidly toward categorical grants for narrowly-defined educational purposes.

A recent publication entitled, "Guide to OE-Administered Programs, Fiscal Year 1970," in which the U.S. Office of Education listed 132 programs, reveals how far we have gone down the categorical aid route. Illustrative of the narrowly defined categories are the following programs selected from the list:

1. Aid in the acquisition and installation of equipment for ETV broadcasting;
2. Construct or improve undergraduate academic facilities;
3. Construct vocational education facilities in the Appalachian region;
4. Aid construction of public libraries;
5. Strengthen instruction in ten critically important subjects;
6. Support provision of school library resources, textbooks, and other instructional materials;

7. Assist in establishing and maintaining guidance, counseling, and testing programs;
8. Support visits by foreign consultants to improve and develop resources for foreign language and area studies;
9. Train prospective and experienced school administrators;
10. Provide a loan fund to aid Cuban refugee students;
11. Meet educational needs of deprived children;
12. Provide additional educational assistance to Indian children in federally-operated schools;
13. Improve leadership resources of State education agencies;
14. Develop new agency for teacher training in metropolitan areas;
15. Retrain experienced teachers for service in desegregating schools:
16. Enable institutions to assist undergraduates' intensive study of a non-Western language;
17. Increase opportunities throughout the Nation for training in librarianship;
18. Support research on improved instruction in modern foreign languages and materials development and area studies;
19. Development and testing of educational innovations until ready for classroom use;
20. Conduct research in areas of physical education and recreation for handicapped children.

In addition to the 132 programs administered by the U.S. Office of Education, there are programs administered by other agencies. The School Lunch Program is administered by the Department of Agriculture. Programs for the education of native Indian children are administered by the Bureau of Indian Affairs. The National Science Foundation is responsible for most federal programs in science education. This list would be expanded even more if a broader definition of education were used.

The proliferation of categorical aids represents a federal policy which would have been rejected fifteen years ago when interstate equalization of public school resources was the role most commonly recommended for the Federal Government. This role called for general support for public schools, granting greater amounts per pupil to low-wealth states with virtually no federal direction over the expenditure of the granted funds.

This concept of the federal role is based upon an historical distrust of the concentration of power. In America, where diversity and the free marketplace of ideas are the dominant ingredients of our educational system, national controls seemed wholly inappropriate. Moreover, under state and local control, public schools have prospered. Local school boards generally have been highly respected, and local property taxpayers have contributed more than one-half of all school revenue. More innovative educational programs have been developed in the United States under state and local control of education than are generally found in nations that have nationally controlled systems of public education.

During this period, some states made great progress, while others lagged far behind. There were shocking differences in the level of education among the states. During World War II and during the Korean War, the number of young men who were unacceptable for military service because of educational deficiencies was intolerably great in some states.

A careful examination of the facts revealed that most of the states with inadequate schools were also the states in which personal income was far below the national average. In general, the people in those states were making as great an effort to finance their schools as were people in other states. They were devoting a fair share of their income to the support of schools, but the funds available to the schools were inadequate.

These facts indicated that the Federal Government should provide general support for public schools without federal control, granting larger amounts per unit of need to low-wealth states, precisely as state governments had done for local school districts. The assignment of this role to the Federal Government was based upon the assumption that the causes of inadequate schools are basically fiscal and that state and local school leadership exists, or can be found, that will make wise choices in the use of additional funds.

Despite these persuasive arguments for general purpose aid to the states for public schools, categorical grants-in-aid have proliferated beyond all expectation, ushering in a new kind of Federal control. Why? The U.S. Congress, consistently, has been vigilant in its opposition to Federal control of education and to the growth of a federal educational bureaucracy. Yet, during the 1960's, Congress enacted laws which created this complex assortment of categorical aids for education.

This abrupt shift in federal educational policy was accepted by some as an expediency—hopefully temporary in nature—to get needed federal dollars started. Efforts to enact laws granting federal general purpose aid to states for public schools encountered two insurmountable roadblocks—the school segregation issue and the church-school controversy. While it is possible to design federal categorical aids so that parochial schools receive some benefit, the United States Supreme Court has recently ruled that general purpose grants to parochial schools would probably violate the First Amendment to the U.S. Constitution.

To others, however, the new emphasis upon categorical aids for education is not a device for getting around historical roadblocks to general federal support funds. Instead, they are part of the "necessary revolution in American education." This view is expressed clearly in a publication of the U.S. Office of Education entitled, *Education 1967: A Report to the Profession*, which declared:

> The 88th and 89th Congresses, responding to the desires of the people, enacted laws enabling the Federal Government to take its place in the local-State-National educational partnership . . . Toward this end, the Congress has enacted 24 major pieces of education legislation in the past 3 years. These new laws are channels through which billions of federal tax dollars will go into our elementary schools, high schools, vocational schools, colleges, and universities.
>
> But this money is not simply handed out in the pious hope that it will be put to good use. Each of the education laws . . . is quite specific. Categories and conditions of aid have been established to insure that these funds are spent in an efficient and prudent manner.

The sharp distinction between the basic philosophy of those who favor federal general purpose aid without federal control and those who favor the new, highly controlled, categorical-aid approach is startlingly clear. During the months and years ahead, this issue will be sharply debated as Congress considers expansion of the categorical-aid system or shifts toward "block" grants.

## EVALUATION OF FEDERAL CATEGORICAL-AID PROGRAMS[1]

To evaluate this complex assortment of federal educational programs, it is necessary to examine the purpose of each program and ask the question: *Is the purpose of the program worthy and appropriate for the Federal Government?*

In deciding what educational purposes are worthy and appropriate for the Federal Government, first consideration should be given to those educational problems which transcend state lines. Since educational deficiencies cannot be quarantined within state boundaries, educational isolationalism practiced by individual states cannot be sound national policy. The Federal Government clearly has a responsibility to act to strengthen public schools in all states. Only by so doing can a state be protected from the spillover effects of educational neglect in other states. Thus, one worthy and appropriate purpose of federal action is to make general purpose grants to states to supplement state and local funds and to encourage states to expend for public schools amounts needed to maintain an adequate basic school program for all children and youth who choose to attend the public schools.

In addition to this general concern for strengthening the total ongoing public school program in each state, the Federal Government has a special responsibility to assist in the education of disadvantaged children. This responsibility has its origins deep in the history of our country, although immediate concern arises partly from the large number of educationally disadvantaged families that have migrated from one state to another in recent years. Thus, a second worthy and appropriate purpose of federal action is to provide special purpose grants for compensatory or remedial education to assist states in educating disadvantaged children.

The Federal Government has increasingly accepted responsibility for reducing unemployment, and Congress has, in recent years, enacted a number of laws to this end. But unemployment cannot be eliminated without suitable vocational education programs in all states. In order to meet its responsibility for full employment, a worthy and appropriate purpose of federal action is to provide special grants to states for vocational education including vocational programs for adults.

The chief source of local revenues for public schools is the property tax. More than half of all revenues of public schools are derived from this source. The Federal Government is the largest property owner in the United States and its property is tax-exempt. This condition obviously leaves a large gap in the tax base of America's public schools. A worthy and appropriate purpose of federal action is to remedy this gap by making contributions to public schools to compensate for deficiencies in the school tax base resulting from the tax-exempt status of federal property.

In the past, the Federal Government has made contributions for the education of individuals for whom it accepts a special responsibility. The education of native Indian children is a case in point. More recently, contributions have been made for the education of veterans and for Cuban refugees. These obligations have been properly accepted by the Federal Government. It is, therefore, a worthy and appropriate purpose of Federal action to contribute toward the cost of education for veterans and for other individuals for whom the Federal Government has accepted a special responsibility.

For many years, the Federal Government has recognized that "promotion of the general welfare" includes assisting in the elimination of hunger, the improvement of the health of the nation, and in the assurance of an adequate and stabilized supply of food for the nation. These are certainly legitimate national purposes. The appropriation of federal funds for school food service programs, including school lunch, school milk, special assistance for the needy, nutrition education, distribution of surplus commodities, and similar programs are consistent with legitimate national purposes.

The National Educational Finance Project made no special study of federal appropriations for higher education, including junior colleges. However, more than 100 years ago, the Federal Government judged that the promotion of certain types of higher education was consistent with national purposes when the Morrill Act was passed. During recent years, numerous federal acts have provided financial assistance, not only for the higher institution, but also scholarships and loans for college students. If federal financial assistance for elementary and secondary education is consistent with national purposes, it seems that federal financial assistance to higher institutions and to students attending those institutions is also consistent with national purposes.

Common to all states is a need to improve education through research and development programs. If each state were to finance all of its own educational research and development, duplication of effort, excessive costs, or inadequate programs would be inevitable. Therefore, as a service to all schools, it is a worthy and appropriate purpose of federal action to finance research and development programs designed to improve the quality of education in all states.

These are all worthy and appropriate purposes for federal action in the field of education. Most of the current list of federal programs in education meet the test of worthiness of purpose. But this test alone is not enough; in addition, federal programs must be effectively administered. For this reason, it is necessary to ask a second question: *Are the administrative arrangements effective and conducive to sound federal-state-local relationships?*

If the federal-state-local partnership is to function to maximum advantage, the assignment of responsibilities to each partner must utilize the special strengths of each, while compensating for each one's weaknesses. Moreover, each partner must perform his duties without interfering unnecessarily with the essential contribution of the other two partners.

Historically and legally, the state government occupies a central role in the public school partnership. If the total public school program is to function effectively, the state must be in a position to coordinate federal programs with state and local programs, and to provide needed supervision and direction. For this reason, federal programs should not by-pass state governments; instead, federal grants for public schools should be made to state departments of education to be allocated to local schools by them in accordance with state plans. This arrangement not only respects the central role of state governments in the field of education, but also avoids excessive growth of the federal bureaucracy.

Over a period of years, states have developed elaborate plans for granting state funds to local school systems. More recently, as we have previously noted, the Federal Government has launched a number of categorical aid programs. Inevitably, some of the new federal programs duplicate the purpose of some existing state-aid programs. For example, some states have provided aid to local school districts for compensatory or remedial education. With the recent entrance of the Federal Government into this field, it may be in the best interest of education for the state to transfer some of its funds to other equally important purposes. To permit such flexibility in the use of state funds, when the Federal Government and a state grant funds to local school districts for the same or for closely related purposes, the federal grant should not be contingent upon continuation of the state grant. Only by preserving the right of the state to adjust its grant program can the state discharge its obligation to the overall education partnership.

The amounts of federal funds to which individual states or local school districts are entitled should be determined by objective formulas, reducing to a minimum discretionary power of federal officers in the allocation of school funds. Any grant-in-aid program which authorizes federal officers to use broad discretion in allocating school funds among states or local school systems will encourage political favoritism, and the proliferation of expert proposal and justification writers.

In order to promote the efficient use of federal funds and to encourage sound state and local planning, federal contributions should be generally predictable for long-range planning purposes and specifically for year-to-year planning. Effective use of federal grants not only requires planning, but also sufficient lead time to recruit personnel and obtain facilities and equipment. Boards of education should know at budgetmaking time the amount of federal funds they will receive during the ensuing year.

In the interest of effective administration and sound intergovernmental relations, the Federal Government should avoid having several departments grant funds for the same or closely related public school purposes. For example, in the field of vocational education there are several programs administered by different agencies making grants to local school systems. A single federal program, working through a comprehensive state plan for vocational education, would avoid much confusion and would be more effective in achieving the purposes of the Federal Government.

The accounting and auditing safeguards for federal grant funds should utilize the procedures that the states require to safeguard their grants to local school systems. Although the U.S. Office of Education should continue to recommend public school accounting procedures, separate accounting and auditing procedures for federal funds should be superimposed on state requirements only if the latter are inadequate.

Moreover, although the Federal Government might, in the case of categorical grants, specify the purpose for which the funds are to be used, great freedom should be allowed to the local school system in selecting the method by which the purpose is to be achieved. This type of operational freedom is necessary if the local partner is to do his job effectively.

These criteria should be helpful in determining if the administrative arrangements of a federal program are effective and conducive to sound federal-state-local relations. However, if all federal programs in education have worthy and appropriate purposes and sound administrative arrangements, there is still the possibility that gaps exist in the total program. For this reason, it is necessary to ask a third question: *Does the combined effect of all federal programs promote the development of adequate public school programs in all states?* Evaluation of the Federal Government's activities in the field of education cannot be made by looking only at each individual program; in addition, the combined effect of all programs must be considered. It is only in this way that gaps can be detected and that the cumulative effect of various programs can be assessed.

Using this criterion raises serious questions about the effective operation of federal aid programs. There is evidence that the combined effect of numerous categorical aids has produced a deluge of red tape that has hampered public schools; that educational talent is being wasted in writing up applications for small amounts of federal money; that the emphasis upon innovataion, and the search for funds to subsidize it, has resulted in the neglect of programs which have proved valuable in the past. In short, there is a growing conviction that the expanding list of federal categorical aids has produced confusion, instability, and distortion of educational emphasis.

A final criterion to be used in evaluating federal categorical appropriations for education is: *Does the appropriation tend to disequalize the financial resources available for education among the states?* In order to meet this criterion the federal appropriation should either tend to equalize financial resources per pupil (or per unit of need) among the states or at least be neutral in its effect. Any appropriation which provides a greater amount of federal aid per pupil (or per unit of need) to the states of greatest wealth than to the states of least wealth has a disequalizing effect. The National Educational Finance Project made a careful analysis of the ten principal federal categorical aids to elementary and secondary education and found that all of these appropriations either had an equalizing or neutral effect on the financial equalization of educational opportunity except Title 2 of ESEA and that appropriation was a very small percent of the total (see Chapter 8 of Volume 4 of the National Educational Finance Project, entitled *Planning to Finance Education*).

### Temporary Versus Continuing Programs

Some federal educational programs are intended to be temporary, but, like temporary buildings, they tend to persist beyond their planned termination dates. When a temporary program is established, a unit is created within the Federal Government to administer it. The employees of the unit tend to feel that their importance and their tenure of employment are related to the continuance of the program. Outside of the government, a lobbying group is formed to represent the program "beneficiaries." Often an association is formed and its employees acquire personal interests in the continuance of the program. Finally, in the local school system which receives federal funds under the temporary program, people are employed to provide the services required to accomplish the purposes of the program. These employees must be prepared to search for new jobs when the program is terminated. Understandably, they seek another job at a time convenient to them, creating staffing problems for the program.

For these reasons, as well as the value of the program itself, temporary programs are often continued beyond their usefulness. Temporary categorical grants are intended to provide a financial stimulant for selected programs or items in the school budget. These grants often provide temporary aid to try out new ideas. The grant programs are expected to terminate and not become part of the continuing school support program. Title II of the Elementary and Secondary Education Act of 1965 and some of the titles of the National Defense Education Act are of this type.

On the other hand, continuing categorical grants are intended to finance, on a continuing basis, selected high cost school programs such as vocational education, compensatory education, and school lunches. These federal grant programs cannot be terminated without curtailing public school programs which contribute to important national goals. The programs supported in this way are usually above average in per student cost and are often related to other concerns of the Federal Government (e.g., vocational education to full employment; compensatory education to the war on poverty).

This distinction between temporary and continuing categorical federal grant programs suggests what the "next steps" should be. First, definite plans should be made to terminate temporary categorical aid programs when they have served their purpose and, second, the continuing categorical grant programs should be consolidated.

If temporary programs are excluded, it should be possible to consolidate continuing categorical aids into a few major "blocks" such as:

1. Vocational education
2. Education of children from low-income families
3. Compensation to schools for federal tax-exempt property
4. Education of handicapped children
5. School food service
6. Educational research and development

With the consolidation of continuing categorical aids into major blocks, it should be possible to simplify application and reporting procedures under approved state plans. Along with these consolidated continuing grants-in-aid, it is necessary to have a few temporary aid programs directed at specific national problems, such as devising better ways for schools to combat drug abuse among young people. Such temporary grants-in-aid, however, should be held to a minimum because they often lead to inefficient planning and unjustifiable efforts to make them permanent.

## AID TO FEDERALLY-AFFECTED SCHOOL DISTRICTS

One rationale for federal grants-in-aid for education is that the Federal Government should compensate states and school districts for deficiencies in the school tax base. Under this concept of the federal role, federal payments are based upon inadequacies of the school tax base. For many years, the Federal Government has compensated local school districts and other local units of government for deficiencies in the property tax base resulting directly from federal ownership of property.

Three distinctly different methods have been used to determine the amounts of payments to be made to school districts, or to other local units of government, to compensate for gaps in the property tax base created by the tax-exempt status of federal property. First, payments-in-lieu-of-taxes based upon the value of the federal property multiplied by a local tax rate are paid by the Federal Government for some types of tax-exempt property. This method of determining the federal payment parallels the methods used to determine the tax obligation of owners of private property, but it is used for only a few types of federal property. Moreover, some federal laws authorizing payments-in-lieu-of-taxes exclude the value of improvements made by the Federal Government in determining the amount to be paid. For example, payments-in-lieu-of-taxes paid by TVA are based upon tax losses incurred by local governments as a result of the acquisition by the Federal Government of property which formerly was taxable. The value of dams and power plants constructed by TVA is not considered in determing the payment. The limitations of this approach are obvious.

If the federal project becomes a basic industry employing thousands of people, large sums of tax funds will be needed by local jurisdictions to build and maintain schools, sewers, and streets. If the federal payments-in-lieu-of-taxes are based upon the value of the unimproved land, the payments will be grossly inadequate to finance the local governmental needs for the expanded population. On the other hand, the exclusion of improvements in determining the amount of the payments is often justified. For example, a costly isolated missile base requiring no public services should not be the basis for a large payment-in-lieu-of-taxes, since the funds would not be needed for schools and local governmental services. In such cases, exclusion of the value of the improvements made by the Federal Government seems reasonable enough.

A second approach to the problem is found in several federal laws relating to public land. For example, 12.5 percent of the revenue derived from grazing fees collected in national grazing districts and 50 percent of the grazing fees collected for other federal lands are paid to states in which the lands are located. Similarly, 37.5 percent of revenues collected by the Bureau of Land Management for rentals and royalties from mineral rights on federal lands are paid to the state in which leased federally-owned mineral lands are located. Under another law enacted in 1908, 25 percent of all revenues derived from the sale of timber and other rights on national forests are paid to states for the benefit of schools and roads in the county in which the forest is located.

This method of determining a federal payment avoids the problem of determining the value of federally-owned property, since payments are based strictly upon the earnings of these properties. However, payments show a marked irregularity from year to year, creating windfalls some years and virtually no revenues in others. For this reason, it is difficult to incorporate these funds into sound budgeting and planning practices by school districts and other local governments. Thus, payments based upon annual earnings are not related to need and are not conducive to efficient use by the recipients.

The third, and perhaps most satisfactory, method of determining payments-in-lieu-of-taxes for school districts is found in Public Laws 815 and 874 enacted in the fall of 1950. These laws stem from an extensive study of school problems in "federally-affected areas" by the House Committee on Education and Labor. These investigations convinced members of the Committee that public schools located near tax-exempt federal installations are unable to maintain satisfactory educational programs unless the federally-owned housing and places of employment in the area contribute a fair share toward the cost of constructing and operating public schools. Taxes levied upon privately-owned residences, many of which were modest in value, could not be expected to make up entirely for the failure of a federally-owned basic industry, such as a tax-exempt navy yard, to pay its fair share of the local tax requirements of the school district.

Based upon these findings, the United States Congress in 1950 enacted Public Laws 815 and 874. The purpose was not only to compensate school districts for gaps in the property tax base resulting from the tax-exempt status of federal property, but also to assure that good public schools would be available near military and other federal installations.

The method of determining federal payments under Section

3 of Public Law 874 to local school districts recognizes the tax-exempt status of federally-owned properties and the basic justification for the payments. But under this section of the law, which is the basis for 99 percent of all payments to school districts under Public Law 874, the presence of tax-exempt property alone is not sufficient to justify the federal payment. In addition, there must be children attending public schools who either live on, or whose parents are employed on, the federal tax-exempt property. In this sense, the method of determining the payment is related to the burden on public schools associated with the federal activity.

No "means test" is employed; and the federal payment is regarded as an entitlement of the school district. Thus, the Federal Government assumes the responsibility of paying local school "property taxes" for both the residential and industrial property it owns. The amount it pays is not related directly to the value of the federal property, but rather to the number of public school children associated with it. Since no means test is employed, these federal contributions are often made to "wealthy" school districts, violating a concept that federal payments should only be made to school districts which demonstrate need. This would not be an objectionable feature of this Act if the states utilizing the equalization method of apportioning state funds were permitted to charge back against the districts receiving such funds the same percentage of local funds that is charged back under their apportionment formulas. Unfortunately, recent amendments prohibit this policy.

## REVENUE SHARING AND FEDERAL AID TO EDUCATION

Numerous proposals have been advanced for the sharing of federal revenue with the states. Following are some factors that have caused interest in federal revenue sharing:

1. The Federal Government collects approximately two-thirds of all tax revenue.
2. The federal tax structure is more responsive to the economy than state and local tax structures.
3. The federal tax structure is less regressive than state and local tax structures.

4. Federal taxes eliminate tax competition among the state and local governments.
5. The great increase in state and local taxes during the past two decades has created major opposition in many places to further increases in state and local taxes.
6. The rapid urbanization of American society accompanied by the development of extra governmental costs in the core cities without compensating increases in taxpaying ability has created serious financial difficulties in many cities.

The impact of federal revenue sharing on the public schools depends largely on the type of the plan and the amount of funds provided.

Let us assume that Congress has decided to share a certain percent of federal revenue with the states and it has the following alternatives under consideration:

1. *Plan A.* All of the federally shared revenue is allocated to the states on a population basis with no federal requirements with respect to its allocation to governmental services. States at present vary widely in the percent of state revenue allocated to the public schools. With no federal requirement with respect to the percent of the shared federal revenue to allocate to the public schools, the states would undoubtedly vary widely in the percent of the shared federal revenue allocated to the public schools. Therefore, no estimate could be made of the financial impact of shared federal revenue in each state under Plan A.
2. *Plan B.* A fixed percent of the shared federal revenue would be allocated to the states on a population basis and a fixed percent to the large cities either on a population basis or on the basis of municipal taxes paid. The percent of shared federal revenue allocated to the states under Plan B would have the same financial impact on the public schools as Plan A. The financial impact on the public schools of the federal revenue shared with the great cities would be still more difficult to analyze. Some cities do not share municipal revenue with the public schools and the cities that do share such revenue vary widely in the percent of municipal revenue allocated to the public schools. In some states the boundaries of the school district are

not coterminous with those of the municipality. This is especially significant in a school district county unit state such as Florida. Therefore, it is impossible to assess the financial impact on the public schools of federal revenue shared with the cities.

3. *Plan C.* Shared federal revenue is allocated to the states on the basis of population with the requirement that a fixed percent be allocated to the public schools. It would be possible to estimate the amount of the shared federal revenue that would be allocated to the public schools under Plan C once the total amount of federal revenue to be shared with each state is determined and the percent to allocate to the public schools is also fixed. For example, let us assume that it has been determined that $18,000,000,000 of federal revenue will be shared with the states in a given fiscal year and that each state must allocate a minimum of 40 percent of this revenue to the public schools. This equals $7,200,000,000 or slightly more than 20 percent of state and local revenue for the public schools in 1969-70. Assuming that each state allocates exactly 40 percent of the shared revenue, Plan C for shared federal revenue would have roughly the same financial impact on the public schools as Plan II for general federal aid analyzed in Tables 2 and 5. The principal difference would be that under Plan C, federal funds would be allocated on the basis of total population and under Plan II on average daily membership in the public schools. If some states allocated to the public schools more than the required minimum of 40 percent of shared federal revenue, then the public schools would receive more federal revenue under Plan C than Plan II.

Congress, of course, could consider numerous other alternatives for allocating shared federal revenue. The principal issues are:

1. How much federal revenue should be shared?
2. How much control over the allocation of shared federal revenue to competing governmental services should be exercised by the Congress?

As already pointed out above, the public schools should receive at least 22 percent and preferably 30 percent of their total revenue from the federal government in order for the schools to have an adequate tax base and in order for the federal government to accomplish legitimate and appropriate federal purposes. Therefore, any long range revenue sharing plan which would assure the public schools substantially less than the 22 to 30 percent of total revenue would be inadequate.

If the Congress wishes to exercise no control whatsoever over the allocation of shared federal revenue to various state and local governmental functions in the states, then Plan A would be the preferred plan.

If Congress wishes to assure that the cities will receive what Congress deems to be an appropriate portion of shared federal revenue and Congress is not concerned about the amount of the shared federal revenue that will be allocated to the public schools, Plan B would be the preferred plan.

If Congress wishes to assure that the public schools will receive what it deems to be an appropriate percentage of shared federal revenue and it is not concerned about the amount of the shared federal revenue that would be allocated to the cities, Plan C would be the preferred plan.

If Congress wishes to assure that both the public schools and the cities receive what it deems to be appropriate percentages repectively, of federal shared revenue, then a combination of Plans A, B and C would be the preferred plan. Under such a plan, the Congress would determine the percentage of the federal shared revenue to be allocated to the public schools, the percentage to be allocated to the cities and the percentage to be allocated to the states to be appropriated for such governmental services as determined by the respective state legislatures.

Insofar as the public schools are concerned, Plan C or a combination of Plans A, B and C would provide the most favorable financial impact on the public schools, assuming that the amount of federal revenue shared with the states is adequate to substantially accomplish the purposes of federal aid to the schools. It is beyond the scope of this report to analyze all plans that have been proposed for revenue sharing. Almost any plan for federal revenue sharing under which federal revenue is collected nationwide and distributed back to the states by some objective measure of need such as population will have a desirable financial impact on public school financing, provided the amount of revenue shared is substantial. Any such plan has an equalizing effect by redistributing income. Some plans, of course, would provide more financial assistance to the public schools than others. About the only type of revenue sharing plan that would be of no financial assistance to the public schools nationwide is a plan under which the federal government allocated back to each state a uniform percentage of the federal revenue collected in that state. Such a plan would have no equalizing effect whatsoever.

## GENERAL PURPOSE GRANTS-IN-AID TO STATES FOR EDUCATION

Proposals for general purpose federal grants-in-aid for public elementary and secondary schools have been presented to the U. S. Congress regularly for more than a third of a century. With equal regularity, the Congress has declined to enact a general support program for public schools. During recent years, however, there has been renewed interest in "block grants" for education as well as proposals to share federal revenues with state governments. These proposals reflect a general concern that federal fiscal dominance has led to a highly centralized control of public services. They are intended to strengthen decentralized control of education and other public services.

Federal grants for vocational education, compensatory education, special education, and research and development are not sufficient to produce needed improvements in elementary and secondary education. In addition to these "block grants," federal action is needed to increase general purpose income available for elementary and secondary schools.

One approach to the problem is to relieve states of other burdens, especially welfare costs, so that they will have sufficient funds to support education. While such federal action would aid states materially, it probably would fall short of assuring an adequate financial base for elementary and secondary schools in all states. Even if this approach is supplemented with a revenue sharing program, adequate educational programs in all states would not be achieved unless part of the shared revenues were earmarked for education.

In considering proposals for general federal aid for education, three approaches or plans and one combination plan are analyzed:

1. Plan I - The national foundation program financed from a combination of federal, state and local funds.
2. Plan II - Equal federal grants per student with no requirement of state and local effort to support education.
3. Plan III - Equal federal plan grants per student for equal state and local effort in proportion to ability.
4. Plan IV - A combination of Plan I and Plan II.

Each of these approaches emphasizes different federal purposes.

Following are some of the principal purposes of general federal aid:

1. To equalize educational opportunity among the states.
2. To transfer the administration and control of federal aid from Washington to the states.
3. To relieve the state and local tax burdens of all states.
4. To stimulate or at least preserve state and local effort to finance education.
5. To develop a plan which is politically acceptable in all or most states.

In the following sections of this chapter, these three approaches and one combination approach to general federal aid are presented and analyzed in terms of these purposes. In order to compare these three approaches, tables are presented showing the impact of each approach on all 50 states. In order to make these three approaches comparable, approximately the same amount of federal aid is allocated under each formula and applied to data for 1969-70. The total amount of general federal aid used to demonstrate the impact of each of these formulas was calculated at approximately 20 percent of state and local revenues for the public schools for 1969-70. The figure of 20 percent of state and local revenue was selected for the following reasons: (1) the federal appropriation must be at least 20 percent of state and local revenue for schools in order to effectively accomplish the principal purposes of general federal aid and (2) such a percentage figure or a higher figure could be written into the general federal authorizing act thus providing a long range plan for determining the federal appropriations for general federal aid.

### Plan I—The National Foundation Program

In this approach to federal support for public schools, each state would receive a federal contribution based upon its need.

Obviously, the need could not be based upon the actual deficit in the public school budget. Such an approach would encourage states to spend more and allocate less state and local tax funds to public schools.

When the foundation program approach is suggested, it is assumed that objective formulas can be developed to determine: (1) the amount of money a state needs annually to provide suitable schooling for all public school students, and (2) the amount of money a state should be expected to provide annually from state and local sources for this purpose. The difference between these two sums for each state determines the amount of federal aid it needs.

Various formulas for determining the amount a state needs to spend for public schools and the amount it should be expected to raise from state and local sources have been suggested. The simplest formula is obtained by assuming that each state (1) needs to spend the same amount per public school student, and (2) should contribute annually for this purpose the same percent of its total personal income payments.

To illustrate the operation of such a formula, let the needed annual expenditure rate be $800 per student and the expected state contribution rate be 4 percent of its total personal income.[2] The amount of federal funds needed in each state under this formula, based on 1969 personal income and 1969-70 A.D.M., is calculated in Table 8-1. Some states would receive no federal payments under this plan, since 4 percent of their personal income exceeds $800 per pupil. The total amount of federal aid required for such a national foundation program is $7,160 millions. The federal contribution under such a foundation program would have been approximately 20 percent of state and local school revenues in 1969-70. The amount of federal funds required would, of course, be less if the $800 per student were reduced, or if the 4 percent state contribution rate were raised to 5 percent. This plan is identical to the Strayer-Haig formula for apportioning state funds described in Chapter 10 of this volume.

Such adjustments in the formula fail to resolve certain other issues—the implied assumption (1) that the average cost per student of suitable education is the same in all states, and (2) that the states of greatest wealth should receive little or no general federal revenue for the public schools despite the fact that such states pay the greatest amount of federal taxes per capita.

Actual expenditure rates per student differ greatly from state to state primarily because salaries paid school employees differ greatly. In the state with the greatest personal income per capita, the average annual salary of public school teachers is approximately twice the average annual salary paid in the state with the lowest income per capita.

One interpretation is that since per capita income measures the prevailing average wage rates for all workers in a state, teachers tend to occupy similar positions within the salary hierarchy in each state. Under this interpretation, differences in teachers' salaries and other school employees reflect general wage rates in each state and can be expected to continue until there has been a change in per capita income and the prevailing wage rates in the state.

This line of reasoning would seem to imply that low income states should provide low quality schools for their children assuming that there is a relationship between the quality of education and the expenditure level. Numerous studies have shown that the low per pupil expenditure states on the average have a considerably higher percent of draftee rejections because of educational deficiencies than the high expenditure states.

A different interpretation stresses per capita income as a measure of fiscal capacity. Under this interpretation, teachers are underpaid in the low per capita income states, not because they are paid in accordance with prevailing wage rates, but because the state has an inadequate school tax base due to poverty. If this analysis is correct, then it is appropriate to ask the federal government to compensate for deficiencies in the school tax base by providing substantial amounts of general aid for low income states. Some would recommend that the federal government provide sufficient funds to assure an acceptable level of education in all states. Such a program would substantially reduce the present wide differentials among the states in teachers' salaries.

If it is assumed that the per pupil cost of education for an *equal quality of education* varies among the states, it should be possible to determine by research what causes those differences and what cost differentials should be provided. Such differentials might be due to difference in cost of living or differences in sparsity or density of population or possibly other factors. The National Educational Finance Project did not have the resources to undertake that research. However, it should be technically possible to solve this problem.

In Chapter 6 of this volume, it is pointed out that the cost per pupil for certain target populations such as vocational students, the handicapped and the culturally disadvantaged is considerably higher than for other students. It has already been recommended in this chapter that the federal categorical aids for these high cost students be continued. If the federal categorical appropriations for these high cost pupils are adequate, there is no need to provide for cost differentials for these target populations in the general federal aid appropriation.

It will be noted that under the national foundation program computed in Table 8-1, high income states, though they are paying the greatest amount of federal taxes per capita, would receive little, if any, federal aid. This form of general purpose aid for elementary and secondary schools was widely supported during the 1930's and 1940's when the per capita income of New York (the state of greatest wealth) was four times as great as in Mississippi, the state of least wealth. Now the ratio between the per capita income in New York and Mississippi has been reduced to 2 to 1. Furthermore, a generation ago, the public school systems and governmental services generally of the wealthy urban states were considered satisfactory and the tax burden for state and local governments in those states was not considered heavy. However, that situation has changed. With the rapid urbanization of American society and the concentration of low income and disadvantaged persons in the core cities, the costs of state and local government, including the public schools, have increased enormously in those states and tax burdens have become onerous. Furthermore, governmental services, including the public schools are not now considered adequate in these states.

For this reason, a federal aid program which fails to increase financial support for schools in the so-called wealthy urban states falls short of national goals at this time.

Summarizing, the national foundation program approach equalizes the financial resources available per pupil better than any other approach. In 1969-70, the state, local and federal categorical revenue available per pupil ranged from a high of $1,325 to a low of $523, a ratio of 2.53 to 1. Table 8-5 shows that Plan

I, the national foundation approach, (assuming that general federal aid would be equal to approximately 20 percent of state and local revenue) would have provided a total of $1,325 per pupil from state, local and federal categorical and federal general aid in the state with the most revenue per pupil and $844 per pupil in the state with the least revenue, a ratio of 1.57 to 1. A comparison of each of the plans analyzed is presented in Table 8-5.

The national foundation approach would also tend to transfer the control of federal aid from Washington to the states. However, the national foundation program approach would not relieve state and local tax burdens in all states, nor would it stimulate state and local effort in all states because under this approach, a number of states would receive little or no federal aid. Furthermore, there is but little reason to believe that this approach would be politically acceptable because of the reasons pointed out above. Therefore, the national foundation program approach would fail to accomplish a number of important federal purposes.

### Plan II—Equal Federal Grants per Student with No Requirement of State and Local Effort

The simplest plan for providing federal aid to the states for the general support of elementary and secondary schools is to grant each state an equal amount per student without reference to variations in taxpaying ability or effort. If the amount provided on this basis is substantial, then considerable equalization of public school support among states would be achieved.

Under such a plan, all states would start with unequal amounts of state and local funds per student, and then each state would receive an equal amount per pupil in general federal aid. This approach would reduce the ratio between the funds available per pupil in the state of greatest wealth to the funds available per pupil in the state of least wealth but not as much as under the national foundation program plan. Table 8-5 shows that under the national foundation program plan, the ratio of funds available per pupil in the most wealthy state to the state of least wealth was 1.57 to 1 and under the equal grant amount of general federal aid, the ratio would be 2.18 to 1. Table 8-2 shows the allocation to each state under Plan II.

Moreover, the high income states, through the operation of the progressive federal income tax, would contribute in federal taxes much more than they would receive, while the low income states would receive more than their citizens contribute to the federal government in taxes.

Attention has been directed in the previous section of this chapter that states vary considerably in per capita income and also they probably vary somewhat in the cost of living. Generally speaking the high per capita income states are also the states with the highest living costs. Therefore, a flat grant of an equal amount per pupil probably over allocates in terms of living costs to the states of least wealth but it also over allocates to the states of greatest wealth in terms of taxpaying ability. Therefore, the flat grant formula of an equal amount per pupil tends to be partly self corrective although variations in the cost of living among the states are no doubt considerably less than variations in taxpaying ability.

Summarizing, Plan II provides for some equalization of financial resources among the states but not nearly as much as Plan I, it transfers the administration and control of federal aid from Washington to the states, it relieves state and local tax burdens in all states as well as or better than any other plan, it does not stimulate or preserve state and local effort to finance education and it is perhaps as politically acceptable or more acceptable than any of the plans analyzed.

Perhaps the greatest weakness of this plan is the inherent danger that states might gradually reduce their contribution to public school support, making public schools increasingly a federal responsibility and perhaps even reducing the total revenue available for the support of the public schools in some states.

To avoid this danger, the equal federal grant for equal effort in proportion to ability plan is suggested.

### Plan III—Equal Federal Grant Per Pupil for Equal Effort in Proportion to Ability[3]

The federal government could provide an incentive to the states for making a reasonable effort in relation to their ability to support their public schools from state and local funds. It has been argued that the personal income a state has available to support education is the net personal income available after providing for at least the subsistence of all of its citizens and after paying federal personal income taxes (see Chapter 4 of this volume). It has also been argued for example, that a state with a total population of five million, and a school enrollment of one million and total personal income of 12 billion has less taxpaying ability than a state with a total population of 4 million, a school enrollment of one million and a total personal income of $12 billion. This seems reasonable because one of these states has one million more population than the other state for whom at least subsistence must be provided. The measure of ability described in Chapter 4 of this volume and applied to Plan III in this section meets these objections because net income is computed by this method by deducting $750 per capita for subsistence and also deducting federal personal income taxes paid. It could well be argued that this measure of net income could be improved by deducting a more realistic figure, such as $1,200 per capita, for subsistence. It could also be argued that the per capita subsistence cost varies among the states due to variations in the cost of living. This is no doubt true and with adequate research, defensible variations among the states in per capita costs of subsistence could be determined.

Plan III, shown in Table 8-3, simply provides that each state is allotted $158 per pupil in average daily membership by the federal government if it makes a state and local tax effort to support its schools equal to or greater than 6.24 percent of net income which was the average effort made by the states in 1969-70. If a state makes an effort of less than 6.24 percent of its net income, it would receive proportionately less. For example, in 1969-70, Alabama made only 88 percent of the national average effort to support its schools and under Plan III, it would receive only 88 percent of $158 per pupil or $139. It is not suggested under Plan III that the national average effort of the states be computed each year but rather that the Congress would set some figure, for example 6.5 percent of net income as the minimum effort each state would be required to make in order to obtain its full allotment of federal funds. This provision should stimulate the states to preserve a reasonable state and local effort to support schools if the federal government provides from 20 to 30 percent of school revenue. The greater the proportion of federal revenue provided, the greater would be the incentive to continue state or local effort under Plan III.

Plan III would provide an even more powerful incentive for the state and local governments to preserve and even increase state and local effort to support education if no limit is placed by the federal government on the percent of personal income allocated to education it would reimburse. If no limit were placed on the reimbursable percentage of income, the states might be encouraged to make a misallocation of resources simply to obtain more federal funds because without a limit, the more state and local funds a state expended on education, the more federal funds it would receive. It is sound public policy for the federal government to require the states to make a reasonable effort in proportion to ability to finance a governmental service which is jointly funded as a condition of receiving federal funds. However, it does not seem to be sound public policy for the federal government to allocate federal funds for any governmental service such as highways, welfare, education, etc. on the basis of "the more you spend, the more federal funds you get." It would seem to be sound public policy to allocate available public funds among competing governmental services on the basis of relative needs and anticipated benefits.

Summarizing, Plan III equalizes financial resources per pupil among the states about as well as Plan II but much less than Plan I, it transfers the administration and control of state aid from Washington to the states as well as any plan, it relieves state and local tax burdens in all states proportionally as much as Plan II and more uniformly than Plan I, it stimulates all states to preserve state and local effort to support education and is more politically acceptable than Plan I. Plan III should be politically as acceptable or even more acceptable than Plan II. It might be argued that neither Plan III nor any of the other plans presented for allocating general federal aid relieve state and local tax burdens because all of these plans assume continued state and local effort which would be supplemented by general federal aid. It is not anticipated that any of these plans would result in a reduction of present state and local effort to support education. However, it is assumed that the need for further increases in state and local taxes, in order to meet increasing school costs, will not be so urgent if the federal government provides an appropriation for general aid, at least equivalent to 20 percent of state and local revenues for the public schools.

### Plan IV—A Combination of Plan I and Plan II

Under this plan, one-half of the federal appropriation for general aid would be apportioned under Plan I and one-half under Plan II. Table 8-4 shows the allocation that would be received by each state under this plan. Table 8-5 shows that the 1969-70 ratio of revenue per pupil in the state with the greatest revenue per pupil to the state with the least revenue would be reduced from 2.53 to 1 to 1.72 to 1 under Plan IV.

Analyzed in terms of some of the principal purposes of federal aid: Plan IV provides for more equalization of financial resources among the states than Plan II or Plan III but less than Plan I, it transfers the administration and control of federal aid from Washington to the states; it provides some relief of the burden of state and local taxes in all states but not as uniformly as Plans I and II, it provides some stimulus for preserving state and local effort but not as great a stimulus or as uniformly as Plan III; it is probably more politically acceptable than Plan I but probably not as politically acceptable as Plans II and III.

### Other Alternative Plans for Allocating General Federal Aid

A large number of alternative plans for apportioning general federal aid could be developed from various combinations of the alternatives analyzed above. For example, Plan V might be the allocation of one-half of the federal appropriation on the basis of Plan I and one-half on Plan III. No table is presented for showing the impact of Plan V on the states. However, Plan V could be evaluated as follows: It would provide for about the same equalization of financial resources as Plan IV, more than Plans II and III but less than Plan I; it would transfer the administration and control of federal aid from Washington to the states as well as any plan analyzed; it would relieve state and local tax burdens of all states as well as Plan IV, better than Plan I but not as much as Plans II and III; it would stimulate the preservation of state and local effort to finance education in all states more than Plans I, II and IV but not as much as Plan III; and it would probably be more politically acceptable than Plan I, equally acceptable as Plan IV, but probably less politically acceptable than Plans II and III.

What is the best plan for apportioning general federal aid

## TABLE 8-1

### PLAN I—FEDERAL CONTRIBUTION TO EACH STATE, BASED ON A NATIONAL FOUNDATION PROGRAM OF $800 PER PUPIL, WITH A LOCAL CONTRIBUTION EQUAL TO FOUR PERCENT OF 1969 STATE PERSONAL INCOME (DOLLARS IN MILLIONS)

| *State* | *1969-1970 ADM in Public Elem. & Sec. Schools (in thousands)* | *ADM × $800* | *4% of Personal Income* | *Federal Contribution*[c] | *Federal Contribution Per Pupil in ADM* |
|---|---|---|---|---|---|
| U. S. TOTAL | 45,100[a] | $36,080 | $29,628 | $7,160 | |
| Alabama | 820 | 656 | 365 | 291 | 355 |
| Alaska | 77 | 62 | 50 | 12 | 156 |
| Arizona | 417 | 334 | 228 | 106 | 254 |
| Arkansas | 436 | 349 | 199 | 150 | 344 |
| California | 4,925 | 3,940 | 3,336 | 604 | 123 |
| Colorado | 534 | 427 | 303 | 124 | 232 |
| Connecticut | 640 | 512 | 551 | 0 | 0 |
| Delaware | 129 | 103 | 89 | 14 | 109 |
| Florida | 1,408 | 1,126 | 896 | 230 | 163 |
| Georgia | 1,098 | 878 | 570 | 308 | 281 |
| Hawaii | 179 | 143 | 122 | 21 | 117 |
| Idaho | 185[b] | 148 | 85 | 63 | 341 |
| Illinois | 2,232 | 1,786 | 1,894 | 0 | 0 |
| Indiana | 1,274 | 1,019 | 755 | 264 | 207 |
| Iowa | 654 | 532 | 395 | 137 | 209 |
| Kansas | 496 | 397 | 324 | 73 | 147 |
| Kentucky | 692 | 554 | 368 | 186 | 269 |
| Louisiana | 843 | 674 | 417 | 257 | 305 |
| Maine | 239 | 191 | 119 | 72 | 301 |
| Maryland | 884 | 707 | 613 | 94 | 106 |
| Massachusetts | 1,132 | 906 | 909 | 0 | 0 |
| Michigan | 2,141[b] | 1,713 | 1,400 | 313 | 146 |
| Minnesota | 913 | 730 | 538 | 192 | 210 |
| Mississippi | 559 | 447 | 209 | 238 | 426 |
| Missouri | 976[b] | 781 | 643 | 138 | 141 |
| Montana | 173 | 138 | 87 | 51 | 295 |
| Nebraska | 329 | 263 | 209 | 54 | 164 |
| Nevada | 122 | 98 | 81 | 17 | 139 |
| New Hampshire | 149 | 119 | 100 | 19 | 128 |
| New Jersey | 1,449 | 1,159 | 1,212 | 0 | 0 |
| New Mexico | 276 | 221 | 115 | 106 | 384 |
| New York | 3,449 | 2,759 | 3,255 | 0 | 0 |
| North Carolina | 1,171 | 937 | 601 | 336 | 287 |
| North Dakota | 147 | 118 | 74 | 44 | 293 |
| Ohio | 2,399 | 1,919 | 1,606 | 313 | 130 |
| Oklahoma | 606 | 485 | 313 | 172 | 284 |
| Oregon | 467 | 374 | 290 | 84 | 180 |
| Pennsylvania | 2,320 | 1,856 | 1,727 | 129 | 56 |
| Rhode Island | 178 | 142 | 141 | 1 | 6 |
| South Carolina | 640 | 512 | 281 | 231 | 361 |
| South Dakota | 165 | 132 | 80 | 52 | 315 |
| Tennessee | 880 | 704 | 448 | 256 | 291 |
| Texas | 2,598 | 2,078 | 1,458 | 620 | 239 |
| Utah | 302 | 242 | 125 | 117 | 387 |
| Vermont | 103 | 82 | 57 | 25 | 243 |
| Virginia | 1,063 | 850 | 618 | 232 | 218 |
| Washington | 823 | 658 | 524 | 134 | 163 |
| West Virginia | 397[b] | 318 | 189 | 129 | 325 |
| Wisconsin | 926 | 741 | 615 | 126 | 136 |
| Wyoming | 85 | 68 | 43 | 25 | 294 |

a—estimated by NEA Research Division.

b—estimated by staff, based on ADA figures for 1969-1970.

c—Total for states which would get funds. No state is credited with a negative amount. Hence, this is more than U. S. total ADM x $800 minus 4% of U. S. personal income, which is only $6,452 million.

SOURCES: *Column 2*: Research Division, National Educational Association, *Estimates of School Statistics, 1970–71* (NEA: Washington, D.C., 1970) Table 3, column 5. *Column 3*: Column 2 multiplied by $800. *Column 4*: Personal Income multiplied by 4 percent. Personal Income for 1969 obtained from U. S. Department of Commerce, Office of Business Statistics: *Survey of Current Business*, (Washington, D.C.: U. S. Government Printing Office) Volume 50, No. 8, August 1970, p. 34. *Column 5*: Column 3 minus column 4.

assuming that approximately the same amount of federal revenue is received by the states from each plan? Obviously the *best* plan can be determined only in terms of the purposes desired to be served by general federal aid and the relative priority assigned to each purpose. It is the responsibility of the people exercised through their elected officials serving at the federal level to make these determinations. Insofar as the public schools are concerned, they would be greatly benefited by any alternative plan of apportionment analyzed above or any combination thereof provided that the amount of general federal aid appropriated would be equal to or greater than the minimum amount suggested in this

TABLE 8-2

PLAN II—EQUAL GRANT OF $158 PER PUPIL IN ADM WITH NO REQUIRED STATE AND LOCAL EFFORT

| *State* (1) | *Total Contribution $158 Times ADM of Each State (in millions)* (2) | *State* (1) | *Total Contribution $158 Times ADM of Each State (in millions)* (2) |
|---|---|---|---|
| U. S. TOTAL | $7,122 | | |
| Alabama | 130 | Montana | 27 |
| Alaska | 12 | Nebraska | 52 |
| Arizona | 66 | Nevada | 19 |
| Arkansas | 69 | New Hampshire | 24 |
| California | 778 | New Jersey | 229 |
| Colorado | 84 | New Mexico | 44 |
| Connecticut | 101 | New York | 545 |
| Delaware | 20 | North Carolina | 185 |
| Florida | 222 | North Dakota | 23 |
| Georgia | 173 | Ohio | 379 |
| Hawaii | 28 | Oklahoma | 96 |
| Idaho | 29 | Oregon | 74 |
| Illinois | 353 | Pennsylvania | 367 |
| Indiana | 201 | Rhode Island | 28 |
| Iowa | 103 | South Carolina | 101 |
| Kansas | 78 | South Dakota | 26 |
| Kentucky | 109 | Tennessee | 139 |
| Louisiana | 133 | Texas | 410 |
| Maine | 38 | Utah | 48 |
| Maryland | 140 | Vermont | 16 |
| Massachusetts | 179 | Virginia | 168 |
| Michigan | 338 | Washington | 130 |
| Minnesota | 144 | West Virginia | 63 |
| Mississippi | 88 | Wisconsin | 146 |
| Missouri | 154 | Wyoming | 13 |

TABLE 8-3

EQUAL GRANT PER PUPIL FOR EQUAL EFFORT IN PROPORTION TO ABILITY

| *State* (1) | *State and Local Revenue for the Schools as a Percentage of Net Personal Income*[a] (2) | *Relative Effort of Each State*[b] (3) | *Federal Grant Per Pupil*[c] (4) | *Total Federal Grant*[d] *(in thousands)* (5) |
|---|---|---|---|---|
| U. S. Total | 6.24 | 1.00 | 158 | 7,125,800 |
| Alabama | 5.50 | .88 | 139 | 113,980 |
| Alaska | 6.21 | 1.00 | 158 | 12,166 |
| Arizona | 7.71 | 1.24 | 158 | 65,886 |
| Arkansas | 6.15 | .99 | 156 | 78,016 |
| California | 6.48 | 1.04 | 158 | 778,150 |
| Colorado | 6.61 | 1.06 | 158 | 84,372 |
| Connecticut | 5.64 | .90 | 142 | 90,880 |
| Delaware | 7.19 | 1.15 | 158 | 20,382 |
| Florida | 6.33 | 1.01 | 158 | 222,464 |
| Georgia | .92 | .92 | 145 | 159,210 |
| Hawaii | 1.02 | 1.02 | 158 | 28,282 |
| Idaho | 1.14 | 1.14 | 158 | 29,230 |
| Illinois | .86 | .86 | 136 | 303,552 |
| Indiana | 1.05 | 1.05 | 158 | 201,292 |
| Iowa | 1.13 | 1.13 | 158 | 103,332 |
| Kansas | 1.07 | 1.07 | 158 | 78,368 |
| Kentucky | .92 | .92 | 145 | 100,340 |
| Louisiana | 1.19 | 1.19 | 158 | 133,194 |
| Maine | 1.03 | 1.03 | 158 | 37,762 |
| Maryland | 1.08 | 1.08 | 158 | 139,672 |
| Massachusetts | 5.22 | .84 | 133 | 150,556 |
| Michigan | 6.44 | 1.03 | 158 | 338,436 |
| Minnesota | 7.36 | 1.18 | 158 | 144,254 |
| Mississippi | 7.84 | 1.26 | 158 | 88,322 |
| Missouri | 5.52 | .88 | 139 | 135,664 |
| Montana | 8.06 | 1.29 | 158 | 27,334 |
| Nebraska | 5.00 | .80 | 126 | 41,454 |
| Nevada | 5.93 | .95 | 150 | 18,300 |
| New Hampshire | 5.37 | .86 | 136 | 20,264 |
| New Jersey | 5.72 | .92 | 145 | 210,105 |
| New Mexico | 8.90 | 1.43 | 158 | 43,608 |
| New York | 6.99 | 1.12 | 158 | 544,942 |
| North Carolina | 5.89 | .94 | 149 | 174,479 |
| North Dakota | 7.14 | 1.14 | 158 | 23,226 |
| Ohio | 5.30 | .85 | 134 | 321,466 |
| Oklahoma | 5.66 | .91 | 144 | 87,264 |
| Oregon | 8.02 | 1.29 | 158 | 73,786 |
| Pennsylvania | 6.15 | .99 | 156 | 361,920 |
| Rhode Island | 5.15 | .83 | 131 | 23,318 |
| South Carolina | 6.66 | 1.07 | 158 | 101,120 |
| South Dakota | 5.91 | .95 | 150 | 24,750 |
| Tennessee | 5.86 | .94 | 149 | 131,120 |
| Texas | 5.43 | .87 | 137 | 355,926 |
| Utah | 8.40 | 1.35 | 158 | 47,716 |
| Vermont | 7.53 | 1.21 | 158 | 16,274 |
| Virginia | 6.28 | 1.01 | 158 | 167,954 |
| Washington | 6.25 | 1.00 | 158 | 130,034 |
| West Virginia | 7.63 | 1.22 | 158 | 62,726 |
| Wisconsin | 6.61 | 1.06 | 158 | 146,308 |
| Wyoming | 6.54 | 1.05 | 158 | 13,430 |

[a] See Chapter 4 of this volume for the method of computation.
[b] Column 2 ÷ 6.24.
[c] Column 3 not in excess of 1.00 times $158.
[d] Column 4 times the ADM of each state.

### TABLE 8-4

PLAN IV—APPROXIMATELY ONE-HALF OF FEDERAL APPROPRIATED ON BASIS OF FLAT GRANT OF $79 PER PUPIL AND ONE-HALF ON THE NATIONAL FOUNDATION PROGRAM BASIS

|  | *Flat Grant* | *National Foundation Program of $695* |  |  |  |  |
|---|---|---|---|---|---|---|
|  | *ADM of 1969–70 × $ 79* | *ADM of 1969–70 × $695* | *4 Percent of Personal Income 1969* | *Federal Contribution (Col. 3—4)* | *Total Federal Contribution ACol. 2+5)* | *Federal Contribution Per Pupil in ADM* |
| *(1)* | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* | *(7)* |
| U. S. Total | 3,565* | 31,350* | 29,628* | 3,489* | 7,054* |  |
| Alabama | 65 | 570 | 365 | 205 | 270 | 329 |
| Alaska | 6 | 54 | 50 | 4 | 10 | 130 |
| Arizona | 33 | 290 | 228 | 62 | 95 | 228 |
| Arkansas | 34 | 303 | 199 | 104 | 138 | 317 |
| California | 389 | 3,423 | 3,336 | 87 | 476 | 97 |
| Colorado | 42 | 371 | 303 | 68 | 110 | 206 |
| Connecticut | 51 | 445 | 551 | 0 | 51 | 79 |
| Delaware | 10 | 90 | 89 | 1 | 11 | 85 |
| Florida | 111 | 979 | 896 | 83 | 194 | 138 |
| Georgia | 87 | 763 | 570 | 193 | 280 | 255 |
| Hawaii | 14 | 124 | 122 | 2 | 16 | 89 |
| Idaho | 15 | 129 | 85 | 44 | 59 | 319 |
| Illinois | 176 | 1,551 | 1,894 | 0 | 176 | 79 |
| Indiana | 101 | 885 | 755 | 130 | 231 | 181 |
| Iowa | 52 | 455 | 395 | 60 | 112 | 171 |
| Kansas | 39 | 345 | 324 | 21 | 60 | 121 |
| Kentucky | 55 | 481 | 368 | 113 | 168 | 243 |
| Louisiana | 67 | 586 | 417 | 169 | 236 | 280 |
| Maine | 19 | 166 | 119 | 47 | 66 | 276 |
| Maryland | 70 | 614 | 613 | 1 | 71 | 80 |
| Massachusetts | 89 | 787 | 909 | 0 | 89 | 79 |
| Michigan | 169 | 1,488 | 1,400 | 88 | 257 | 120 |
| Minnesota | 72 | 635 | 538 | 97 | 169 | 185 |
| Mississippi | 44 | 389 | 209 | 180 | 224 | 401 |
| Missouri | 77 | 678 | 643 | 35 | 112 | 115 |

* In millions

### TABLE 8-4 (CONTINUED)

| | *Flat Grant* | *National Foundation Program of $695* | | | | |
|---|---|---|---|---|---|---|
| | *ADM of 1969–70 × $ 79* | *ADM of 1969–70 × $695* | *4 Percent of Personal Income 1969* | *Federal Contribution (Col. 3−4)* | *Total Federal Contribution ACol. 2+5)* | *Federal Contribution Per Pupil in ADM* |
| *(1)* | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* | *(7)* |
| Montana | 14 | 120 | 87 | 33 | 47 | 272 |
| Nebraska | 26 | 229 | 209 | 20 | 46 | 140 |
| Nevada | 10 | 85 | 81 | 4 | 14 | 115 |
| New Hampshire | 12 | 104 | 100 | 4 | 16 | 107 |
| New Jersey | 114 | 1,007 | 1,212 | 0 | 114 | 79 |
| New Mexico | 22 | 192 | 115 | 77 | 99 | 359 |
| New York | 272 | 2,397 | 3,255 | 0 | 272 | 79 |
| North Carolina | 93 | 814 | 601 | 213 | 306 | 261 |
| North Dakota | 12 | 102 | 74 | 28 | 40 | 272 |
| Ohio | 190 | 1,667 | 1,606 | 61 | 251 | 105 |
| Oklahoma | 48 | 421 | 313 | 108 | 156 | 257 |
| Oregon | 37 | 325 | 290 | 35 | 72 | 154 |
| Pennsylvania | 183 | 1,612 | 1,727 | 0 | 183 | 79 |
| Rhode Island | 14 | 124 | 141 | 0 | 14 | 79 |
| South Carolina | 51 | 445 | 281 | 164 | 215 | 336 |
| South Dakota | 13 | 115 | 80 | 35 | 48 | 291 |
| Tennessee | 70 | 612 | 448 | 164 | 234 | 266 |
| Texas | 205 | 1,806 | 1,458 | 348 | 553 | 213 |
| Utah | 24 | 210 | 125 | 85 | 109 | 361 |
| Vermont | 8 | 72 | 57 | 15 | 23 | 223 |
| Virginia | 84 | 739 | 618 | 121 | 205 | 193 |
| Washington | 65 | 572 | 524 | 48 | 113 | 137 |
| West Virginia | 31 | 276 | 189 | 87 | 118 | 297 |
| Wisconsin | 73 | 644 | 615 | 29 | 102 | 110 |
| Wyoming | 7 | 59 | 43 | 16 | 23 | 271 |

Column 5: Column 3 − Column 4
Column 6: Column 2 + Column 5
Column 7: Column 6 ÷ ADM

### TABLE 8-5

### RELATIVE IMPACT ON EQUALIZATION OF FINANCIAL RESOURCES OF PLANS I, II, III AND IV—TOTAL REVENUE PER PUPIL FROM ALL SOURCES UNDER PLANS I, II, III AND IV COMPARED WITH TOTAL REVENUE FROM ALL SOURCES AVAILABLE PER PUPIL IN 1969–70

| | *Total Revenue from Federal, State and Local Sources Per Pupil in ADM 1969–70* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan I* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan II* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan III* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan IV* |
|---|---|---|---|---|---|
| (1) | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* |
| U. S. Average | $ 842 | $1,001 | $1,000 | $1,000 | $ 998* |
| Alabama | 523 | 878 | 681 | 662 | 852 |
| Alaska | 1,129 | 1,285 | 1,287 | 1,287 | 1,259 |
| Arizona | 864 | 1,118 | 1,022 | 1,022 | 1,092 |
| Arkansas | 570 | 914 | 728 | 726 | 887 |
| California | 773 | 896 | 931 | 931 | 870 |
| Colorado | 810 | 1,042 | 968 | 968 | 1,016 |
| Connecticut | 1,155 | 1,155 | 1,313 | 1,297 | 1,234 |
| Delaware | 1,056 | 1,165 | 1,214 | 1,214 | 1,141 |
| Florida | 804 | 967 | 962 | 962 | 942 |
| Georgia | 589 | 870 | 747 | 734 | 844 |
| Hawaii | 1,066 | 1,183 | 1,224 | 1,224 | 1,155 |
| Idaho | 588 | 929 | 746 | 746 | 907 |
| Illinois | 1,064 | 1,064 | 1,222 | 1,200 | 1,143 |
| Indiana | 688 | 895 | 846 | 846 | 869 |
| Iowa | 844 | 1,053 | 1,022 | 1,002 | 1,015 |
| Kansas | 914 | 1,061 | 1,072 | 1,072 | 1,035 |
| Kentucky | 660 | 929 | 818 | 805 | 903 |
| Louisiana | 703 | 1,008 | 861 | 861 | 983 |
| Maine | 725 | 1,026 | 883 | 883 | 1,001 |
| Maryland | 968 | 1,074 | 1,126 | 1,126 | 1,048 |

## TABLE 8-5 (CONTINUED)

|  | *Total Revenue from Federal, State and Local Sources Per Pupil in ADM 1969–70* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan I* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan II* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan III* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan IV* |
|---|---|---|---|---|---|
| (1) | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* |
| Massachusetts | 882 | 882 | 1,040 | 1,015 | 961 |
| Michigan | 798 | 944 | 956 | 956 | 918 |
| Minnesota | 903 | 1,113 | 1,061 | 1,061 | 1,088 |
| Mississippi | 561 | 987 | 719 | 719 | 962 |
| Missouri | 771 | 912 | 929 | 910 | 886 |
| Montana | 821 | 1,116 | 979 | 979 | 1,093 |
| Nebraska | 708 | 872 | 866 | 834 | 848 |
| Nevada | 864 | 1,003 | 1,022 | 1,014 | 979 |
| New Hampshire | 761 | 889 | 919 | 897 | 868 |
| New Jersey | 1,079 | 1,079 | 1,237 | 1,224 | 1,158 |
| New Mexico | 749 | 1,133 | 907 | 907 | 1,108 |
| New York | 1,325 | 1,325 | 1,483 | 1,483 | 1,404 |
| North Carolina | 670 | 957 | 828 | 819 | 931 |
| North Dakota | 754 | 1,047 | 912 | 912 | 1,026 |
| Ohio | 758 | 888 | 916 | 892 | 863 |
| Oklahoma | 560 | 844 | 718 | 704 | 817 |
| Oregon | 980 | 1,160 | 1,138 | 1,138 | 1,134 |
| Pennsylvania | 970 | 1,026 | 1,128 | 1,126 | 1,049 |
| Rhode Island | 850 | 856 | 1,008 | 981 | 929 |
| South Carolina | 655 | 1,016 | 813 | 813 | 991 |
| South Dakota | 673 | 988 | 831 | 823 | 964 |
| Tennessee | 607 | 898 | 695 | 756 | 873 |
| Texas | 652 | 891 | 810 | 789 | 865 |
| Utah | 707 | 1,094 | 865 | 865 | 1,068 |
| Vermont | 933 | 1,176 | 1,091 | 1,091 | 1,156 |

TABLE 8-5 (CONTINUED)

| | *Total Revenue from Federal, State and Local Sources Per Pupil in ADM 1969–70* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan I* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan II* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan III* | *Total Revenue Per Pupil in ADM 1969–70 Plus Amount Proposed Under Plan IV* |
|---|---|---|---|---|---|
| (1) | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* |
| Virginia | 781 | 999 | 939 | 939 | 974 |
| Washington | 905 | 1,068 | 1,063 | 1,063 | 1,042 |
| West Virginia | 703 | 1,028 | 861 | 861 | 1,000 |
| Wisconsin | 967 | 1,103 | 1,125 | 1,125 | 1,077 |
| Wyoming | 879 | 1,173 | 1,037 | 1,037 | 1,150 |
| Ratio of State with Greatest Amount of Revenue Per Pupil to State with Least Amount | 2.53 to 1 | 1.57 to 1 | 2.18 to 1 | 2.24 to 1 | 1.72 to 1 |

Column 2: Computed from *NEA Estimates of School Statistics 1969–70* (Revised).
Column 3: Federal Revenue per pupil proposed under Plan I added to Column 2.
Column 4: Federal Revenue per pupil proposed under Plan II added to Column 2.
Column 5: Federal Revenue per pupil proposed under Plan III added to Column 2.
Column 6: Federal Revenue per pupil proposed under Plan IV added to Column 2.

*The national average for Plans III and IV would have been approximately the same as the national average for Plans I and II if all states had made a state and local effort equal to or greater than 4.7736 percent of personal income.

chapter. The minimum amount of federal aid needed in order to at least make some significant impact on the accomplishment of legitimate federal purposes, including present categorical aids plus the proposed general aid of 20 percent of state and local school revenue, would total approximately 21 percent of total school revenue. Those purposes would be much more adequately accomplished if the federal government would provide 30 percent of total school revenues.

It has been recommended earlier in this chapter that block categorical grants for the education of certain high cost target populations such as vocational students, the handicapped and the culturally disadvantaged be continued. The percent of the total school enrollment of these high cost pupils varies from state to state, especially the percent of the culturally disadvantaged. If the categorical appropriations for these high cost pupils are discontinued, the allocations per pupil for general aid should be varied appropriately in order to reflect these higher costs.

Finally, numerous proposals have been made concerning the controls the federal government should retain over general aid. Those proposals range all the way from no controls whatsoever to detailed controls similar to those now being exercised over some categorical grants. The National Educational Finance Project favors the minimum of federal controls over general federal aid necessary to attain the basic federal purposes in providing general aid.

## FOOTNOTES

1. NOTE: This section draws extensively from a paper by Erick Lindman entitled "Criteria for Coordinating Federal Programs" reported in *Proceedings of Tenth Annual Conference on School Finance*, Washington, D. C.: National Education Association, 1967.

2. A better measure of the relative measure of the state to support education is described in Chapter 4 and applied to Plan III in this chapter.

3. This is sometimes called the equalized matching plan.

## CHAPTER 9

# *Criteria for Evaluating State Financing Plans for the Public Schools*

A comprehensive state school finance plan should be developed only after making antecedent decisions on certain fundamental policy issues, as follows:

1. The educational objectives.
2. The scope, content and quality of the program to accomplish the objectives.
3. The organizational arrangements for providing public schooling.
4. The level of financing that is required to provide the program desired.
5. The extent to which educational opportunity within the state will be equalized.
6. The degree of progressivity or regressivity of the tax structure used to finance the schools.

The National Educational Finance Project has developed several methods for evaluating the state school finance plan for implementing decisions on these policy issues.

In the latter part of this chapter, techniques are presented for (1) evaluating the extent to which the school finance plan equalizes educational opportunity within a state and (2) evaluating the relative progressivity of the tax structure of a state for financing the public schools. These techniques do not encompass all of the characteristics of school finance programs which should be examined. Therefore, a check list of desirable characteristics of a state's plan for financing the public schools is presented below. These criteria can be used by any state to evaluate its school financing plan.

## CHECK LIST OF CRITERIA FOR EVALUATING THE STATE SCHOOL FINANCE PROGRAM

A comprehensive state school finance plan must deal with at least three major types of public policy issues:

1. The scope, content and quality of the public school program;
2. The organizational arrangements for providing public schooling;
3. The level and method of financing public schools.

For convenience of presentation, criteria for state school finance plans may be grouped under these headings as they are below; however, the interrelated nature of the criteria should not be ignored when they are used in making a state study.

### Program Criteria

The state school finance plan should:

1. Provide local school systems a level of support for an educational program commensurate with the relative financial ability of the state.
2. Include provisions for innovation and improvement in instructional programs.
3. Include provisions for the identification and evaluation of alternative methods of accomplishing educational objectives.
4. Provide a system for local districts to develop program and financial data which permit accountability to the public.
5. Substantially equalize educational opportunity throughout the state.

**Organizational Criteria**

The state school finance plan should financially penalize or at least not financially reward:

6. The establishment or continuation of small inefficient school districts;
7. The establishment or continuation of small inefficient enrollment centers, except in cases resulting from geographical isolation;
8. The continuation or establishment of school districts which segregate pockets of wealth or leave pockets of poverty in the state or result in the segregation of pupils by race or socio-economic class;
9. The continuation or establishment of school enrollment centers which result in the segregation of pupils by race, religion or socio-economic class.

**Finance Criteria**

The state school finance plan should:

10. Include all current expenditures as well as capital outlay and debt service to facilitate equitable budgetary planning for all phases of each district's educational program.
11. Recognize variation in per pupil program costs for local school districts associated with specialized educational activities needed by some but not all students, such as vocational education, education of exceptional or handicapped pupils, and compensatory education.
12. Recognize differences in per pupil local district costs associated with factors such as sparsity and density of population, e.g., pupil transportation, extra costs of isolated schools, variations in cost of living.
13. Be funded through an integrated package which facilitates equitable budgetary planning by the local school district.
14. Utilize objective measures in allocating state school funds to local school districts.
15. Be based on a productive, diversified and equitable tax system.
16. Integrate federal funds with state funds and allocate to

local districts in conformance with the criteria herein set forth to the extent permitted by federal laws and regulations.

In addition to these criteria which can be used as guides to the evaluation of state school finance plans, two techniques have been developed by the National Educational Finance Project for evaluating a state's school finance plan by objective means. These procedures are designed to evaluate the two most commonly accepted goals of state school finance plans: (1) to equalize educational opportunities for pupils, and (2) to provide an equitable tax system for financing the public schools. Objective instruments are presented in the following sections of this chapter for measuring the extent to which the school finance plan in each state meets these goals.

## TYPES OF STATE SUPPORT PROGRAMS

Equalization of educational opportunity has long been an important goal of the American people. There is little doubt that the equalization concept is a highly esteemed value in American culture. Despite the attention that has been focused on equalization of educational opportunity, there is not general agreement on a precise definition of this broad concept. For example, absolute identity of educational opportunity for all children is not possible or even desirable because children with different needs require different types of educational opportunity in order to equalize their chances for obtaining an education commensurate with their needs. School children vary greatly in cultural background, in native ability, in interest, in physical and mental handicaps and other factors. These factors and many other factors affect the learning of children and youth. It is not possible to equalize all of these factors. However, it is possible to reduce the undesirable effects of these factors by planning the intelligent use of the financial resources made available for public education. The National Educational Finance Project, in this study, has focused its attention primarily on an evaluation of the extent to which various plans of state and local financing utilized by the 50 states utilize the financial resources available to equalize educational opportunities.

Various plans of state support fall in the following broad classifications. (See Table 9-1).

TABLE 9-1

CLASSIFICATION OF THE STATES INTO TYPES
SCHOOL SUPPORT PLANS USED FOR THE SCHOOL YEAR, 1968–69*

| | *Equalization Programs* | | | *Complete State and Federal Support* |
|---|---|---|---|---|
| *Flat Grant Programs* | *Strayer-Haig* | *Percentage Equalizing* | *Guaranteed Valuation or Tax Yield Plan* | |
| Arizona | Alabama | Iowa | Utah | Hawaii |
| Arkansas | Alaska | Massachusetts | Wisconsin | |
| Connecticut | California | New York | | |
| Delaware | Colorado | Pennsylvania | | |
| New Mexico | Florida | Rhode Island | | |
| North Carolina | Georgia | Vermont | | |
| South Carolina | Idaho | | | |
| | Illinois | | | |
| | Indiana | | | |
| | Kansas | | | |
| | Kentucky | | | |
| | Louisiana | | | |
| | Maine | | | |
| | Maryland | | | |
| | Michigan | | | |
| | Minnesota | | | |
| | Mississippi | | | |
| | Missouri | | | |
| | Montana | | | |
| | Nebraska | | | |
| | Nevada | | | |
| | New Hampshire | | | |
| | New Jersey | | | |
| | North Dakota | | | |
| | Ohio | | | |
| | Oklahoma | | | |
| | Oregon | | | |
| | South Dakota | | | |
| | Tennessee | | | |
| | Texas | | | |
| | Virginia | | | |
| | Washington | | | |
| | West Virginia | | | |
| | Wyoming | | | |

*These classifications deal only with the principal state appropriation for the public schools in each state.

1. *Flat Grants*

a. Uniform Flat Grants Allocated to all Districts Regardless of Local Taxable Wealth and Amount of Local Taxes.

The state revenue is allocated on the basis of a flat amount per child or per teacher or some other method that does not take into consideration either the variation in educational needs of the student population or the variation in the taxpaying ability of the local districts. This type of grant may be either general or special purpose.

b. Variable Flat Grants Allocated to all Districts Regardless of Wealth.

This is a more sophisticated type of flat grant which is allocated on a similar method to the uniform flat grant. However, the units such as pupil or teacher units are weighted according to variations in costs due to factors beyond the control of the boards of education. For example, unit costs may vary due to grade level, type of educational program, sparsity, etc. This type of grant also may be utilized in the form of general or special purpose.

Flat grants although not providing maximum equalization do provide considerable equalization depending upon the amount of funds provided by the state. This is due to the fact that the taxpayers of more wealthy districts contribute more revenue to the state treasury than their district receives back on a uniform allotment basis, whereas the less wealthy districts receive back from the state proportionately more funds than the revenue contributed.

2. *Equalization Grants*

All equalization grants take into consideration variations in the taxpaying ability of the local districts, but not all equalization grants consider the variations of educational needs of the student population. Like the flat grants, equalization grants may be either general or special purpose. There are many variations in equalization grants as follows:

a. Strayer-Haig Formula-Unweighted Measures of Need.

Educational needs are calculated in terms of a uniform amount per pupil or per teacher or some other method that ignores the variation of educational needs of the student population and the yield of a required local tax effort in proportion to ability is deducted from the designated cost of the program in order to determine the state allocation.

b. Strayer-Haig Formula-Weighted Measures of Need.

Educational needs are calculated in terms of weighted unit costs such as weighted pupils or adjusted instruction units which take into consideration necessary unit cost variations, and the yield of a required local tax effort in proportion to ability is deducted from the designated cost of the program, in order to determine the state allocation.

c. Percentage-Equalizing or State Aid Ratio Program.

Educational needs are calculated on either the basis of *a* or *b* above and the state aid to each district is computed according to the relationship of some measure of wealth per pupil to the same measure of wealth in the average district in the state. Under this plan, similar to the Strayer-Haig plan, state funds are allocated in inverse proportion to the taxpaying ability of the local school districts. This program differs from *a* and *b* only in technology and not in its equalization properties. In fact, it is a mathematical adaptation of the Strayer-Haig formula.

d. The Guaranteed Valuation or Tax Yield Per Unit of Need Plan.

Under this plan, the state guarantees to each district a fixed valuation or tax yield per pupil or per teacher unit. The pupil or teacher units may be weighted or unweighted. Basically, this model provides each district the difference between the yield of a given tax levy on its equalized assessed valuation, or the yield of the same tax levy on the valuation per pupil or per teacher unit which the state has previously guaranteed for the state. This plan is only a variable way of achieving the same results as the Strayer-Haig model.

At one time, non equalized matching grants which required local districts to match state funds on a dollar for dollar basis or some proportion of a dollar without taking into consideration variations in the taxpaying ability of local school districts were used to some extent. This type of matching grant has largely been abandoned and is not of much significance.

## THE NEFP TYPOLOGY

The major purposes for developing the National Educational Finance Project Typology for classifying school funds and measuring the extent of financial equalization were as follows: First, to determine the extent to which financial equalization is achieved in each state; second, to provide an historical benchmark from which educational finance programs in the future can be evaluated with respect to progress made; and third, to provide a method by which alternative school finance models may be evaluated with respect to financial equalization of educational opportunity.

> *The basic assumptions back of the NEFP Typology are: Financial equalization is most nearly accomplished when the following two factors are met: (1) the varying educational needs of the student population are taken into consideration in the method of allocation of funds to the expending units, and (2) the variation of the ability among the local school districts to support education is reduced or eliminated through the utilization of state resources.*

The NEFP Typology is based on the following assumptions:

1. That local school funds in and of themselves, provide no financial equalization unless local variations in taxpaying ability are taken into consideration in the state's apportionment formula.
2. Assuming that a given amount of state revenue is apportioned to the districts of a state:

   a. No equalization is obtained if state dollars are required to be matched dollar per dollar from local funds.
   b. The first level of equalization is reached when state funds are allocated in the form of uniform flat grants per teacher or per pupil without taking into consideration necessary variations in costs and without taking into consideration variations in local taxpaying ability.
   c. The second level of equalization is reached when state funds are allocated in the form of flat grants which take into consideration necessary unit cost variations but which do not take into consideration variations in local taxpaying ability.
   d. The third level of equalization is reached when state funds are allocated in the form of uniform flat grants without taking into consideration necessary unit cost variations but which take into consideration variations in local taxpaying ability.

e. The fourth and highest level of equalization is obtained from a given amount of a state revenue when it is allocated in such a manner as to take into consideration necessary variations in unit costs, and also variations in the taxpaying ability of local school districts.

Briefly, the NEFP Typology classifies local and state funds into five levels of financial equalization: the levels range from Level 0 to Level 4.

### State Funds

State funds are classified in the following five levels according to the criteria established below:

1. *Level O of Equalization*: When state funds are allocated in such a manner as to leave districts with the same or greater differences in local financial capacity to support education as they were before receiving state allocations they are classified in Level 0. A method of state distribution which is classified as Level 0 is a minimum guarantee of funds to certain wealthy districts which are not entitled to receive state funds under strict interpretation of the equalization formula. Also, if districts were not entitled to receive as much under the equalization formula as they received under a minimum guarantee, the difference between what they should have received under the equalization formula and the minimum guarantee amount is classified as Level 0. The remaining amount that the districts were entitled to under the equalization formula is classified as either Level 3 or Level 4 described below, depending on whether educational needs are taken into consideration. The allocation in dollar for dollar matching grants without regard for differences in taxpaying ability of the districts, provides for no equalization and is also classified in the zero level of equalization.
2. *Level 1 of Equalization*: When state funds are allocated on the basis of a flat amount per unweighted pupil or unadjusted classroom unit basis, or some other method which ignores unit cost variations in meeting the educational needs of the students, and a required local share in proportion to the taxpaying ability of the local districts is not deducted before the apportionment is made, the funds are classified in Level 1.

3. *Level 2 of Equalization*: When state funds are allocated on a weighted unit basis or some other method that recognizes unit cost variations in meeting the educational needs of the students and a required local share in proportion to the taxpaying ability of the local district is not deducted before the apportionment is made the funds are classified in Level 2 of equalization.
4. *Level 3 of Equalization*: State funds are classified in Level 3 when they are allocated on the basis of unweighted pupils or some other method that ignores necessary variations in unit costs, but a required local share in proportion to the taxpaying ability of the local districts is deducted before the apportionment is made.
5. *Level 4 of Equalization*: When state funds are allocated on a weighted pupil basis or some other method that recognizes unit cost variations in meeting the educational needs of the students and a required local share in proportion to the taxpaying ability of the local districts is deducted before the apportionment is made, they are classified in Level 4 of equalization.

It will be noted that the NEFP Typology is a continuum ranging from Level 0, which provides for no equalization, to the highest level of equalization which is Level 4.

## Local Funds

Local funds can also be classified by the NEFP Typology. The required local share in proportion to the taxpaying ability of the local districts that is deducted from the total cost of the basic program is classified as either Level 3 or Level 4 depending on whether unit cost variations in meeting the educational needs of the students are taken into consideration. The remaining local (leeway) revenue raised for the support of education is considered additional local revenue and is classified as Level 0 of equalization.

## Instructions for Applying the NEFP Typology

The following is a description of how the NEFP Typology was applied to various school support programs:

## I. *FLAT GRANTS*

Flat grant programs are very easily classified by the NEFP Typology. If the funds are allocated on the basis of a flat amount per pupil on some other basis that ignores meeting variations in unit costs, the appropriation is classified as Level 1. If the students are weighted or if some other basis that recognizes differences in unit costs is used, the appropriation is classified in Level 2.

All the local funds in a state which do not take into consideration variations in the taxpaying ability of local districts in its formula for distributing state funds (i.e., uniform and variable flat grants) are classified in Level 0. If a state using an equalization formula deducts the amount of a flat grant received by a district in determining the amount of the equalization fund to which it is entitled, that part of the flat grant so deducted in effect becomes an equalization fund and should be classified as either Level 3 or 4 as described under D below.

Examples:

State A—Uniform Flat Grant Fund

State Share—Distributed on the basis of a flat amount per pupil

| | |
|---|---|
| State Funds | $ 70,000,000 |
| Local Share—None Required | |
| Local Funds | $ 30,000,000 |
| Classification: | |
| State Funds | $ 70,000,000 = Level 1 |
| Local Funds | $ 30,000,000 = Level 0 |

State B—Variable Flat Grant Fund

State Share—Distributed on the basis of weighted pupils (i.e. Elementary pupils assigned a weighting of 1.0, Secondary pupils a weighting of 1.25, Special Education pupils, a weighting of 2.0, etc.)

| | |
|---|---|
| State Funds | $ 70,000,000 |
| Local Share—None Required | |
| Local Funds | $ 30,000,000 |
| Classification: | |
| State Funds | $ 70,000,000 = Level 2 |
| Local Funds | $ 30,000,000 = Level 0 |

## II. *EQUALIZATION PROGRAMS*

### *A. Strayer-Haig Formula*

When the Strayer-Haig formula is used to apportion state funds, all state funds apportioned under this plan could be classified as either Level 3 or Level 4 if the yield of the required local share for the support of the program is equal to or exceeds the total cost of the program in the wealthiest district in the state. If necessary differences in unit costs are taken into consideration when computing the cost of the Strayer-Haig-Mort program, the state funds are classified in Level 4 and if necessary differences in unit costs are ignored the funds are classified in Level 3.

However, if the required local share is less than the computed cost of the Strayer-Haig program in the wealthiest district in the state, the following procedures are utilized in determining the classification of the state and local funds of the program:

> 1. The percentage of the total cost of the Strayer-Haig program that is financed from state funds in the wealthiest district is computed.
>
> The wealthiest district is selected in most states from districts which have 1,500 pupils or larger in average daily attendance. Districts smaller than 1,500 pupils in average daily attendance were eliminated because it is assumed that such small inefficient districts will be consolidated in the future. Further, it is possible for small districts to have extremely high valuations per pupil which is not comparable to most districts in the state. However, in some states which have large numbers of very small districts it is necessary to select the wealthiest district from districts with 1,000 pupils in average daily attendance.
>
> 2. The percentage computed under (1) is multiplied by the total cost of the Strayer-Haig program in that state, and the product is the part of the state Strayer-Haig program funds in that state which is classified as either Level 1 or Level 2, depending upon whether differences in unit costs are taken into consideration in computing the cost of the Strayer-Haig program.
>
> 3. From the total state funds provided for the support of the Strayer-Haig program, the amount computed under

"2" is deducted. The remainder is classified under Level 3 or Level 4, depending upon whether differences in educational needs are taken into consideration in computing the cost of the Strayer-Haig-Mort program.

4. The required local share is deducted from the total local funds used for the support of the public schools in the state and classified as either Level 3 or Level 4, depending upon whether differences in educational needs are taken into consideration in computing the cost of the foundation program. The remaining local revenue is considered as additional local funds providing no equalization and classified in Level 0.

Examples:

State A—Strayer-Haig Formula (Wealthiest district receives no state equalization funds)

1. Given that the cost of the Strayer-Haig-Mort program is:
   a. 140,000 units @ $500 per unit $ 70,000,000
   b. Local Share $ 20,000,000
   c. State Share $ 50,000,000
2. Given that additional local funds are: $ 30,000,000
3. Given that the total cost of the program for the wealthiest district in the state is $1,000,000 (2,000 units X $500) with a state share of 0 and the required local share of $1,000,000, the classification is made as follows:
   a. State Funds—$50,000,000 Level 3 or 4
   b. Local Funds
      (1) Required Local Share—$20,000,000 Level 3 or 4
      (2) Additional Local Funds—$30,000,000 Level 0

   If units of educational need are weighted in proportion to necessary cost variations, the funds are classified in Level 4 and if not, in Level 3.

State B—Strayer-Haig Formula (Wealthiest district receives equalization funds)

1. Given that the total cost of the Strayer-Haig program is:
   a. 140,000 units @ $500 per unit $70,000,000
   b. Local Share $20,000,000
   c. State Share $50,000,000
2. Given that the additional local funds are: $30,000,000
3. Given that the total cost of the program for the wealthiest

district in the state is \$1,000,000 (2,000 units × \$500) with a state share of \$700,000 and the required local share of \$300,000, the classification is made as follows:

a. 70% of cost assumed by the state
b. 70% × total cost of the program for the state (state and local)
c. .70 × \$70,000,000 = \$49,000,000
d. \$50,000,000 − \$49,000,000 = \$1,000,000
e. State Funds
    (1) \$49,000,000 Level 1 or 2
    (2) \$ 1,000,000 Level 3 or 4
f. Local Funds
    (1) Required Local Share—\$20,000,000 Level 3 or 4
    (2) Additional Local Funds—\$30,000,000 Level 0

If units of educational needs are weighted in proportion to necessary cost variations, the funds are classified in the higher level of equalization.

B. *Percentage Equalizing or State Aid Ratio Formula*

When the percentage equalizing program is used to apportion state funds, the entire allocation can be classified in either Level 3 or Level 4 if the local share in the wealthiest district or districts exceeds the calculated cost of the total program. If units of educational need are weighted in proportion to necessary cost variations, the entire allocation is classified in Level 4, and if not, in Level 3. However, if the wealthiest district or districts receives state funds under a minimum percentage guarantee, the following procedures are used in the classification of state funds:

1. Each district participating under the minimum percentage guarantee is identified.

2. The percentage of cost (state aid ratio) which the districts would have been entitled to except for the minimum percentage of cost guarantee is determined.

3. The difference between what they are entitled to if there was no minimum percentage of cost guarantee and what they actually receive is calculated, totalled, and classified as Level 0.

4. If the wealthiest district or districts are entitled to no funds except under the minimum percentage of cost guarantee, then the difference between the total funds ap-

portioned under this program and the funds identified in 3 above are classified as Level 3 or Level 4 as described above.

5. However, if the wealthiest district or districts are still entitled to funds, even without the minimum percentage of cost guarantee, the funds identified in 4 are classified in a similar method as funds classified under a Strayer-Haig program.

### C. *The Guaranteed Valuation on Tax Yield Per Unit of Need Plan*

The classification of this plan is achieved in a similar manner as the percentage equalizing program previously discussed.

### D. *Classification of Special Purpose Funds and Flat Grants Deducted in Apportioning State Equalization Funds.*

If flat grants either general or special purpose, received by a district are deducted from the equalization fund to which the district would otherwise be entitled, then such state funds are classified as either Level 3 or Level 4. If necessary differences in costs of the units of educational need are taken into consideration in the allocation of the equalization fund, such funds are classified as Level 4 and if ignored they are classified as Level 3.

If the state allocates a uniform amount per pupil transported without reference to differences in sparsity of population and differences in local taxpaying ability, that apportionment is classified in Level 1. If different amounts per pupil are allocated which takes into consideration differences in sparsity but not differences in taxpaying ability, the apportionment is classified in Level 2. If state funds for transportation are allocated on the basis of a uniform amount per pupil and differences in taxpaying ability of local school districts are taken into consideration, the apportionment is classified in Level 3. If both sparsity and differences in taxpaying ability are taken into consideration, the apportionment is classified in Level 4.

The same rationale should be employed in classifying most other special purpose grants.

Special appropriations for such items as textbooks present a unique situation. For example, there are no significant differences in cost per textbook for the same grade level for students of different types of school districts; consequently, there is no need for the allocation to take into consideration differences in costs. Therefore, the state apportionment for school textbooks based on the uniform amount per pupil allocated without reference to differences in taxpaying ability of local school districts is classified in Level 2, and if differences in taxpaying ability are taken into consideration, in Level 4. The policy followed in classifying appropriations for textbooks is utilized in the classification of other special appropriations. That is, if there are differences in local educational costs per unit which are due to conditions beyond the control of the local boards of education, those differences should be taken into consideration in the allocation formula in order for the apportionment to be classified in the higher level. However, if there are no differences in unit costs, as in the case of the cost of textbooks, then the state apportionment is classified in the higher level of equalization.

### Developing an Equalization Score

A state advances toward the equalization of the financial resources available for education when it:

1. Increases the percent of school revenue provided from state sources.
2. Apportions the state funds available in inverse proportion to the taxpaying ability of local school districts.
3. Makes allowance in its apportionment formula for the necessary variations in costs per unit of educational need.

In the following paragraphs, a method of scoring the extent of financial equalization of educational opportunity in a state is developed which includes the three variables listed above. This measure is comparable among the states. It is not intended to measure all of the desirable characteristics of a state support plan. It was devised solely to measure the extent of financial equalization among the districts of a state.

*Scoring Unitary Models.* Following is the method of scoring a unitary model:

1. A finance model with all school funds provided from local

sources would have the minimum equalization score unless the state would be comprised of only one taxing district as is the case of Hawaii. A state comprised of only one district would have a maximum equalization score if all funds were provided from local sources or state sources or a combination of state and local sources assuming that budgetary provision is made for pupils in different communities with varying needs and conditions requiring varying per pupil expenditure to provide equivalent educational opportunities. Even in states organized into units large enough to permit reasonable efficiency and economy of scale, districts will usually vary at least from 5 to 1 or 7 to 1 in equalized valuation per pupil. For our first model, let us assume that a state comprised of a number of districts varying in wealth, finances its schools entirely from local funds. Such a state has the minimum level of equalization. Let us assign the score of 1 as the equalization value of any funds providing no equalization. Therefore, a finance model which included no funds equalizing the differences in taxpaying ability among districts would be given an equalization value of 1.

2. Finance model 2 under which all school funds are provided by the state by a formula which allotted the same amount per pupil to all districts would eliminate the differentials among districts in financial ability. The equalization value of this model should be at least 5 to 7 times the equalization value of model 1.

3. For model 3, let us assume that all funds are provided by the state but that cost differentials due to sparsity, high cost of disadvantaged or exceptional pupils, vocational education, etc., are provided for in the state formula. Although the cost per pupil for vocational education, exceptional education, compensatory education may be as great as 2 or 3 to 1 and the cost of transportation and the extra expense of low pupil-teacher ratios in sparsely settled areas may be considerable, the *necessary* variation of the total per pupil costs among efficiently organized districts probably does not exceed 20 percent for a significant number of districts within a given state. Therefore, if we include necessary variations in school costs in model 3, it would at least be a 20 percent improvement in equalization over model 2.

*Scoring Mixed Models.* The method of scoring mixed models is more complex. Most states have complex finance models comprised of local funds (some equalized in state programs and some unequalized), flat grants equalized and unequalized, and variable unit grants equalized and unequalized.

Let us assume that local funds become state funds when they become part of the equalization formula. That is that portion of local funds included in the state guaranteed program before determining the allocation of state funds to a district, in effect, becomes a state fund used to equalize educational opportunity.

We can score mixed models utilizing the typology set forth above. Let us assume that as we move toward equalization, all state funds become Level 3 funds and all local funds are charged back in allocating state funds (that is deducted before allocating state funds). Let us then assign an equalization value of 7 for Level 3 equalization.

As we approach maximum equalization, all state and local funds become Level 4 funds. If all state funds were allocated on a Level 4 formula and all local funds charged back, the maximum equalization value for this model would be 8.4 which would be 20 percent more than the maximum value of Level 3 funds.

The following method is developed from these assumptions:

1. Level 0 funds are assigned a score of 1 in order that other levels may be made proportional to it.
2. Level 1 funds have at least 5 times the equalization value of equalization Level 0 funds. As Level 1 funds approach 100 percent of total state and local funds, the equalization value of Level 1 funds approaches the value of Level 3 funds. Therefore, the equalization value of Level 1 funds should be computed as follows: [5 + (.02 × the percent of total state and local funds in Level 1 × 100)].
3. Level 2 funds have at least 20 percent more equalization value than Level 1 funds. However, as Level 2 funds approach 100 percent of state and local funds, the equalization value of Level 2 funds approaches the value of Level 4 funds which have the maximum equalization value. Therefore, the equalization value of Level 2 funds should be computed as follows: [6 + (.024 × the percent of total state and local funds in Level 2 × 100)].

4. As indicated above, Level 3 funds are assigned an equalization value of 7.
5. Level 4 funds are assigned the maximum equalization value of 8.4 which is 20 percent higher than Level 3 funds.

This method of scoring assigns higher equalization values as a state moves from the 0 Level of equalization through Levels 1, 2, 3, and 4 making proportionate allowances as a state moves toward greater equalization by using both state and local funds to eliminate the disadvantages of inequalities of wealth among districts, by making financial provision for necessary variations in unit costs and by increasing the percent of school revenue provided from state sources.

This equalization score should not be considered as a total evaluation of the financial program of a state. The equalization score does not take into consideration such important factors as financial adequacy of the program, incentives to stimulate local initiative, quality of education, educational outputs, and other important matters. The equalization score should be interpreted only as measuring the extent that state and local funds are being used to equalize the financial resources available for education in a state.

Table 9-2 shows the equalization score of each of the 50 states for the year 1968-69. The highest possible score is 8.4 and the lowest possible score is 1.0. It will be noted from this table that equalization scores range from 2.295 in Connecticut to 8.40 in Hawaii.

It is interesting to note that the Pearson Product-Moment Correlation yielded a coefficient of +.646, which is significant at the .01 level, between the percentage of school funds provided by the state and the equalization score obtained by applying the NEFP Typology. This supports the opinion of many authorities in school finance that when a state assumes the primary responsibility for funding its school support program, greater financial equalization is usually achieved. However, if all state funds were apportioned on the Level 4 basis, the correlation between percentage of school funds provided by the state and the equalization score obtained from the NEFP Typology would be higher.

Also, when the Pearson Product-Moment Correlation was applied to each state's equalization score and total number of school support grants, a coefficient of −.294 was found which is signifi-

TABLE 9-2

RANKING AND EQUALIZATION SCORES OF THE STATES BASED ON THE NEFP TYPOLOGY FOR THE SCHOOL YEAR, 1968–69

| *Rank* | *State* | *Score* | *Rank* | *State* | *Score* |
|---|---|---|---|---|---|
| 1 | Hawaii | 8.400 | 26 | Maryland | 5.092 |
| 2 | Utah | 7.143 | 27 | Virginia | 5.085 |
| 3 | Rhode Island | 6.862 | 28 | Texas | 4.963 |
| 4 | Alaska | 6.628 | 29 | California | 4.841 |
| 5 | Wyoming | 6.543 | 30 | Montana | 4.810 |
| 6 | Washington | 6.368 | 31 | Maine | 4.804 |
| 7 | Idaho | 6.318 | 32 | Nevada | 4.779 |
| 8 | Alabama | 6.220 | 33 | Massachusetts | 4.536 |
| 9 | Delaware | 6.202 | 34 | Oregon | 4.535 |
| 10 | North Carolina | 6.148 | 35 | Tennessee | 4.521 |
| 11 | Georgia | 6.103 | 36 | Minnesota | 4.433 |
| 12 | Kentucky | 6.042 | 37 | Arizona | 4.355 |
| 13 | Florida | 5.995 | 38 | Iowa | 4.042 |
| 14 | New York | 5.957 | 39 | North Dakota | 3.931 |
| 15 | Louisiana | 5.929 | 40 | Missouri | 3.852 |
| 16 | New Mexico | 5.915 | 41 | Michigan | 3.844 |
| 17 | Ohio | 5.882 | 42 | Kansas | 3.820 |
| 18 | Pennsylvania | 5.870 | 43 | New Jersey | 3.754 |
| 19 | Vermont | 5.834 | 44 | Indiana | 3.704 |
| 20 | Wisconsin | 5.781 | 45 | Oklahoma | 3.691 |
| 21 | Mississippi | 5.744 | 46 | Arkansas | 3.647 |
| 22 | West Virginia | 5.578 | 47 | Colorado | 3,571 |
| 23 | Illinois | 5.398 | 48 | South Dakota | 3.420 |
| 24 | Nebraska | 5.378 | 49 | New Hampshire | 3.091 |
| 25 | South Carolina | 5.235 | 50 | Connecticut | 2.295 |

cant at the .05 level. Although this coefficient was not extremely high, it does give added support to those persons who contend that a proliferation of categorical grants usually detract from financial equalization.

The Pearson Product Moment Correlation between the number of districts in a state and the equalization score was −.312 significant at the .05 level. This may indicate the existence of a large number of districts in a state is a political factor retarding the development of financial equalization.

## Conclusions

One of the most important conclusions that can be derived from the analysis of the financial sources available for education presented in this chapter is that the extent to which financial resources for education are equalized does not depend as much on the type of plan used as on the content of the plan and the extent to which it is financed. For example:

1. If the variable unit cost type of flat grant is used to provide 100% of the financing in the state including federal funds, the variable flat grant plan becomes the Hawaii plan which theoretically provides complete equalization of financial resources.
2. If any one of the three equalization plans absorbs all of the local taxing leeway, and educational need is measured on a variable unit cost basis, then all of the equalization plans become equivalent to the Hawaii plan of complete state support because local funds are in effect converted into state funds.
3. As complete state funding is approached, differences in the equalizing properties of flat grant models and equalization models begins to disappear.

However, if a state finances its schools from a combination of state and local funds, it will achieve greater financial equalization from a *given amount of state revenue* if it utilizes the equalization plan of state financing and maximizes the required local effort within the legal tax limit of school districts which is included as a part of the total program equalized.

## EVALUATION OF TAX STRUCTURES

The determination of the relative desirability of alternative tax sources is an extremely complicated matter. Several criteria have come to be generally accepted by economists for use in evaluating tax structures. According to Due, a nationally known economist: "These criteria are not derived by scientific analysis, but merely reflect widespread popular attitudes, in conformity with generally accepted objectives of contemporary society. While consensus on the criteria is strong, interpretations of their meaning in particular circumstances vary widely."[1]

### Generally Accepted Criteria for Evaluation of Taxes

Following are the criteria listed by Due[2] which are commonly used for evaluating tax structures:

1. *Economic Distortions*—A major criterion is the establishment of tax structures in such a fashion as to minimize distorting effects upon the functioning of the economy—that is, effects that cause persons to alter economic behavior in a fashion contrary to the objectives of the society.

2. *Equity*—The rule that governmental costs be distributed in a fashion regarded by contemporary society as equitable is generally accepted. What constitutes equity, however, is strictly a value judgment and there are wide differences of opinion. Usually equity is considered to require:

   a. Equal treatment of equals. Persons regarded as being in the same relevant circumstances should be taxed the same amount.

   b. Distribution of the overall tax burden on the basis of ability to pay, as measured by income, by wealth, by consumption.

   c. Exclusion from tax of persons in the lowest income groups, on the grounds that they have no taxpaying capacity.

   d. A progressive overall distribution of tax relative to income, on the basis that tax capacity rises more rapidly than income. This requirement is less generally accepted than the others. There is general agreement that the structure should be at least proportional to income.

3. *Compliance and Administration*—Attainment of the objectives of society requires that taxes be collectable to a high degree of effectiveness with minimum real costs (money and nuisance) to the taxpayers and reasonable cost to the government for collection. Inability to enforce a tax effectively at tolerable costs will cause loss of both revenue and equity.

4. *Revenue Elasticity*—Governmental expenditures tend to rise at least in proportion to national income even if programs are not increased. If tax revenues do not keep pace at given tax rates, constant rate changes are required.

It is impossible to develop an instrument which would measure objectively the relative standing of the states on each of these criteria. However, it is possible to measure at least with some degree of objectivity the extent to which a particular tax is regressive or progressive with respect to income. In the following section of this chapter, a method is proposed for measuring objectively the extent to which the total tax structure of a state for all governmental services is regressive or progressive.

## Measuring the Extent to Which Tax Structures are Progressive or Regressive

Economists, as pointed out above, generally use rather comprehensive criteria to evaluate tax structures. However, the lay public generally considers a progressive tax to be a good tax and a regressive tax, beyond certain limits, to be a bad tax. This is especially true of taxpayers with average or less than average income. Since taxes are levied by political processes, the political acceptability of a tax is of great importance to those involved in obtaining tax revenues for a particular function of government such as education. If a tax being used to finance a particular function of government is considered by the electorate as an excessively regressive tax, the electorate is likely to underfinance that governmental service, not because the electorate does not value that service but because the voters object to the type of tax being used to finance it. This is particularly true of the public schools. Although the property tax is generally considered to be the most regressive of any of the major types of taxes, in 1970 more than half of all public school tax revenue was still obtained from property taxes. Experts on school finance are generally agreed that many of the difficulties of financing the public schools can be traced to excessive reliance upon the property tax as the chief source of school revenue.

Since the electorate is so greatly concerned about the regressiveness of taxes being used to support the public schools, an instrument is proposed in the following paragraphs for measuring the relative progressivity of tax structures being used to finance the public schools.

*Symbols.* Since the relative progressivity of a tax is determined mathematically in this chapter, the following symbols are used in the equations:

$T_1$ = Progressivity value of all federal taxes as compared with the progressivity of the federal personal income tax.

$T_2$ = Progressivity value of all state taxes as compared with the federal personal income tax.

$T_3$ = Progressivity value of local school taxes as compared with the federal personal income tax.
$T_n$ = Progressivity value of all taxes combined (federal, state and local) used to support the public schools in the nation as a whole.
$T_s$ = Progressivity value of all taxes, federal, state and local used to finance the public schools in a particular state.
$R_1$ = Federal school revenue receipts.
$R_2$ = State school revenue receipts.
$R_3$ = Local school revenue receipts.
$R$ = $R_1 + R_2 + R_3$ = Total school revenue receipts.
$R_4$ = Total federal revenue for all purposes, excluding social security tax (employment tax).
$R_5$ = Total state revenue for all purposes, excluding unemployment compensation tax.
$X_1$ = Federal individual income taxes.
$X_2$ = Federal corporate income taxes.
$X_3$ = Federal sales, excises, customs and other.
$X_4$ = Federal estate and gift taxes.
$X_5$ = State individual and corporate income taxes.
$X_6$ = State sales and gross receipts taxes.
$X_7$ = State property taxes.
$X_8$ = State estate and gift taxes.
$X_9$ = Other state taxes.
$X_{10}$ = Local property taxes for schools.
$X_{11}$ = Other local school revenue.

*Assumptions.* The following assumptions were made in order to compute an objective measure of the relative progressivity of each tax:

1. The most progressive major tax is the progressive income tax. The more progressive the rates, the more progressive is the tax. The most progressive personal income tax levied in the United States is the federal income tax. Therefore, the federal personal income tax is assigned a value[3] of 50 and the value of T for any tax is determined by the progressiveness of that tax as compared with the federal personal income tax.
2. The relative progressiveness of any tax can be computed by comparing the progressiveness (or regressiveness) of that tax to the progressiveness of the federal individual income tax.

*Computation of Progressivity Value for Each Tax.* The progressivity value or score for each tax is defined in this chapter as the relative progressiveness of each tax as compared with the federal personal income tax. The Tax Foundation, Inc.[4] has provided some information which makes it possible to make these comparisons. Table 9-3 presents some significant computations derived from data provided by the Tax Foundation. Approximately one-half of the families of the nation had incomes of less than $5,000 in 1965 and one-half had incomes of $5,000 and above. Table 9-3 compares the percent of income paid by the lower half of families for each tax with the percent of income paid for that tax by the upper half. It will be noted that families of less than $5,000 income paid 3.98% of their income for the federal individual income tax as compared to 9.90% for families with incomes of $5,000 and above. This is a ratio of 2.49 to 1. The ratios for each tax are shown in Column 12 of Table 9-3. It will be observed that the only progressive taxes are individual and corporate income taxes, both state and federal.

Column 13 shows the percent of progressiveness of each tax as compared with the federal individual income tax and Column 14 converts that percentage into a score as compared with the federal individual income tax which was arbitrarily assigned a score of 50 in Assumption 1 above.

*Formula for Computing $T_1$, $T_2$, $T_3$ and $T_n$ Values.* The following formulas are presented for computing the different types of T values:

*Formula 1.* This formula is used for computing the T value of all federal taxes (except social security) combined.

$$T_1 = \frac{(X_1 \times 50) + (X_2 \times 24) + (X_3 \times 16) + (X_4 \times 50)}{R_4}$$

*Formula 2.* This formula is used to compute the T value of all state taxes (except unemployment taxes) combined.

$$T_2 = \frac{(X_5 \times 35) + (X_6 \times 15) + (X_7 \times 14) + (X_8 \times 50) + (X_9 \times 14)}{R_5}$$

### TABLE 9-3

Federal, State and Local Taxes* As A Percentage of Total Income for All Families by Income Class—1965 (Adapted from, *Tax Burdens and Benefits of Government Expenditures by Income Class, 1961 and 1965*, New York: Tax Foundation, Inc., 1967; p. 20)

| | *Under $2,000* *Col. 1* | *$2,000–2,999* *Col. 2* | *$3,000–3,999* *Col. 3* | *$4,000–4,999* *Col. 4* | *Un-Weighted Average Col. 1 to 4* *Col. 5* | *$5,000–5,999* *Col. 6* |
|---|---|---|---|---|---|---|
| Federal | | | | | | |
| 1. Individual Income | 1.9 | 3.1 | 4.5 | 6.4 | 3.98 | 6.9 |
| 2. Corporate Income, Sales, Excises | 4.5 | 4.3 | 5.5 | 3.6 | 4.98 | 3.9 |
| 3. Customs and other | 3.3 | 3.1 | 3.3 | 3.1 | 3.20 | 3.0 |
| 4. Estate and gift | — | — | — | — | — | — |
| State & Local | | | | | | |
| 1. Individual and corporate income | .6 | .6 | .8 | .9 | .73 | .9 |
| 2. Sales and excises | 6.1 | 5.5 | 5.6 | 5.3 | 5.62 | 5.1 |
| 3. Property | 6.9 | 5.2 | 4.7 | 4.2 | 5.25 | 4.2 |
| 4. Estate and gift | — | — | — | — | — | — |
| 5. Other state and local | 1.8 | 1.4 | 1.3 | 1.2 | 1.43 | 1.2 |

*Formula 3.* This formula is used to compute the T value of all local taxes used for the public schools.

$$T_3 = \frac{(X_{10} \text{ x } 14) + (X_{11} \text{ x } 14)}{R_3}$$

*Formula 4.* This formula is used to compute the T value of all revenue, state, federal and local used to support the public schools of the nation.

$$T_n = \left(\frac{R_1}{R} \text{ x } T_1\right) + \left(\frac{R_2}{R} \text{ x } T_2\right) + \left(\frac{R_3}{R} \text{ x } T_3\right)$$

*Computation of $T_1$, $T_2$ and $T_3$ Values.* The computations of $T_1$, $T_2$ and $T_3$ values are summarized in Table 9-4. This table shows that the T value of all federal taxes in 1968 was 39.90; all state taxes 20.49 and all local school taxes 14.00. It will be noted that taxes are the least regressive at the federal level and most regressive at the local school district level.

*Computation of T Value of Aggregate School Revenue for the*

Table 9-3 (Continued)

| *$6,000–7,499 Col. 7* | *$7,500–9,999 Col. 8* | *14,999 $10,000– Col. 9* | *$15,000+ Col. 10* | *Un-weighted Average Col. 6 to 10 Col. 11* | *Ratio of High Income Average to Low Income Average (Col. 11÷ Col. 5) Col. 12* | *Percent of Federal Individual Income Tax Ratio (Col. 12÷ 2.49) Col. 13* | *Equity Score (Col. 13 × 50) Col 14* |
|---|---|---|---|---|---|---|---|
| 1. 7.7 | 8.8 | 10.0 | 16.1 | 9.90 | 2.49 | 1.00 | 50 |
| 2. 3.4 | 3.4 | 5.3 | 10.9 | 5.38 | 1.20 | .48 | 24 |
| 3. 2.8 | 2.6 | 2.4 | 1.5 | 2.46 | .77 | .31 | 16 |
| 4. — | — | — | 4.6 | — | — | 1.00† | 50 |
| 1. .9 | 1.1 | 1.2 | 2.2 | 1.26 | 1.73 | .69 | 35 |
| 2. 4.8 | 4.4 | 4.0 | 2.6 | 4.24 | .75 | .30 | 15 |
| 3. 3.8 | 3.5 | 3.3 | 2.4 | 3.44 | .66 | .27 | 14 |
| 4. — | — | — | 1.3 | — | — | 1.00† | 50 |
| 5. 1.1 | 1.0 | 1.0 | .7 | 1.00 | .70 | .28 | 14 |

*Excludes social security
†Estimated

*Nation.* It will be noted from Table 9-4 that the T value for all federal taxes in 1968 was 39.90, all state taxes 20.49 and all local school taxes 14.00. In 1968-69, federal sources provided 7.3% of school revenue, state sources 40.9% and local sources 51.8%. Therefore, the $T_n$ value for school revenue for the nation in 1968-69 is computed as follows:

$$T_n = \left(\frac{R_1}{R} \text{ x } 39.90\right) + \left(\frac{R_2}{R} \text{ x } 20.49\right) + \left(\frac{R_3}{R} \text{ x } 14\right)$$

$$= (.073 \text{ x } 39.90 + [.409 \text{ x } 20.49] + .518 \text{ x } 14.00)$$

$$= 3.05 + 8.38 + 7.25$$

$$= 18.54$$

Assuming that a value of 50 represents the progressivity value of the most progressive type of tax in relation to income, it is evident that the taxes used to support the public schools are more regressive than progressive.

*Computation of T Values for Alternative Models for School Financing.* In the preceding paragraph the $T_n$ value of taxes

TABLE 9-4

COMPUTATION OF PROGRESSIVITY VALUES (T VALUES) OF ALL TAXES—FEDERAL, STATE AND LOCAL, 1968 (EXCLUDING SOCIAL SECURITY AND UNEMPLOYMENT TAXES)

| *TAX* | *AMOUNT (in millions)* | *PROGRESSIVITY VALUE (T Value)* |
|---|---|---|
| TOTAL FEDERAL TAXES:* | | |
| 1. Individual income | 78,155 | 50 |
| 2. Corporate income | 29,897 | 24 |
| 3. Estate and gift | 3,015 | 50 |
| 4. Sales, excises & other | 14,387 | 16 |
| TOTAL | 125,454 | 39.90†† |
| TOTAL STATE TAXES:* | | |
| 1. Individual and corporate income | 8,749 | 35 |
| 2. Sales, gross receipts | 20,979 | 15 |
| 3. Property | 912 | 14 |
| 4 Estate and gift | 872 | 50 |
| 5. All other | 4,888 | 14 |
| TOTAL | 36,400 | 20.49†† |
| LOCAL SCHOOL TAXES:** | | |
| 1. Property | 14,157 | 14 |
| 2. All other | 289 | 14 |
| TOTAL | 14,446 | 14.00† |

**Statistical Abstract of the United States, 1969,* Bureau of the Census.
†State Government Finances in 1968, U. S. Dept. of Commerce, Bureau of the Census.
**N.E.A. Estimates of School Statistics, 1968-69.
††Weighted average.

used to support the public schools in 1968-69 was computed. What would be the $T_n$ value for the nation for alternative models of school financing? Computations are presented below for certain alternative models.

1. *Model 1.* This model has the following assumptions.
   a. Thirty percent of all school revenue is provided by the federal government.
   b. The states in the aggregate provide 60 percent of school revenues.
   c. Local school districts in the aggregate provide 10 percent of school revenue.

The $T_n$ for Model 1 is:

$$\begin{aligned} T_n &= (.30 \times 39.90) + (.60 \times 20.49) + (.10 \times 14) \\ &= 11.97 + 12.29 + 1.4 \\ &= 25.65 \end{aligned}$$

It is observed that this model increases considerably the $T_n$ value of school taxes indicating that increasing the proportions of school revenue from federal and state sources will reduce the regressivity of the tax structure used to support the public schools.

2. *Model 2.* This model is based on the assumption that all revenues for the public schools would be provided by the federal government. From Table 9-4 it is noted that the $T_n$ value would be 39.90.
3. *Model 3.* This model is based on the assumption that all revenues for the public schools would be provided by the states. Table 9-4 shows that the $T_n$ value would be 20.49, based on the average tax structure of state-collected taxes in 1965. This is considerably less than Model 2.
4. *Model 4.* This model is based on the assumption that all revenues would be provided from local taxes. Table 9-4 shows that the $T_n$ value would be 14.00 under this model which is less than Model 3.
5. *Other Models.* Such models could be based on an infinite number of combinations of federal, state and local funds. The following generalization could be applied to all such models. The more the percent of federal and state revenues is increased and the more the percent of local revenues is decreased, the higher the $T_n$ value and therefore, the more progressive the tax structure.

*Computation of the T Value of the Total Revenue of a State.* Formula 2 is used to compute the T value ($T_2$) of the total revenues of a state. Table 9-5 shows the T value of the state tax revenue of each state computed according to Formula 2. It should be emphasized that the $T_n$ value of many states could be increased sharply if states were to adopt more progressive individual and corporate income tax structures and increase the proportion of these taxes in the total state's tax system.

Table 9-5 shows that there is considerable variation among the states in the relative progressivity of their state tax struc-

TABLE 9-5

THE RELATIVE PROGRESSIVITY OF STATE TAX REVENUES, 1968–69

| *State* | *Progressivity Value*[a] *($T_1$ Value)* | *State* | *Progressivity Value*[a] *($T_1$ Value)* |
|---|---|---|---|
| Alabama | 18.5 | Montana | 22.8 |
| Alaska | 23.6 | Nebraska | 17.5 |
| Arizona | 18.0 | Nevada | 14.8 |
| Arkansas | 18.5 | New Hampshire | 17.9 |
| California | 22.5 | New Jersey | 18.7 |
| Colorado | 22.4 | New Mexico | 16.7 |
| Connecticut | 20.8 | New York | 25.7 |
| Delaware | 25.3 | North Carolina | 22.4 |
| Florida | 15.3 | North Dakota | 18.3 |
| Georgia | 20.2 | Ohio | 15.2 |
| Hawaii | 21.9 | Oklahoma | 18.9 |
| Idaho | 21.4 | Oregon | 26.7 |
| Illinois | 15.8 | Pennsylvania | 18.9 |
| Indiana | 20.0 | Rhode Island | 18.4 |
| Iowa | 20.0 | South Carolina | 20.3 |
| Kansas | 20.2 | South Dakota | 15.6 |
| Kentucky | 20.5 | Tennessee | 17.6 |
| Louisiana | 16.9 | Texas | 15.2 |
| Maine | 16.0 | Utah | 21.1 |
| Maryland | 23.4 | Vermont | 23.7 |
| Massachusetts | 25.4 | Virginia | 22.8 |
| Michigan | 18.5 | Washington | 15.7 |
| Minnesota | 23.9 | West Virginia | 17.4 |
| Mississippi | 16.8 | Wisconsin | 26.0 |
| Missouri | 19.5 | Wyoming | 15.9 |

[a] Based on a unit value of 50.0 for the federal personal income tax.

tures. The range of $T_1$ scores is from 14.8 in Nevada to 26.7 in Oregon.

*Computation of the T Value of the Revenues of the Public Schools in Each State.* The following formula can be used for computing the T value of federal, state and local revenue provided for the public schools in each state.

$$T_s = \frac{R_1}{R} \text{ x } 39.90 + \frac{R_2}{R} \text{ x the T value of the state revenue}$$

$$+ \frac{R_1}{R} \text{ x the T value of the local revenue used to finance schools}$$

TABLE 9-6

THE RELATIVE PROGRESSIVITY OF TAX REVENUES FOR THE PUBLIC SCHOOLS FROM FEDERAL, STATE AND LOCAL SOURCES, 1968–69

| *State* | *Progressivity Value ($T_s$ Value)* | *State* | *Progressivity Value*[a] *($T_s$ Value)* |
|---|---|---|---|
| Alabama | 21.7 | Montana | 18.2 |
| Alaska | 25.7 | Nebraska | 16.5 |
| Arizona | 19.1 | Nevada | 16.2 |
| Arkansas | 20.8 | New Hampshire | 15.7 |
| California | 18.9 | New Jersey | 16.0 |
| Colorado | 17.9 | New Mexico | 20.4 |
| Connecticut | 17.0 | New York | 20.7 |
| Delaware | 24.2 | North Carolina | 23.5 |
| Florida | 17.4 | North Dakota | 17.6 |
| Georgia | 20.6 | Ohio | 15.7 |
| Hawaii | 24.3 | Oklahoma | 17.9 |
| Idaho | 19.9 | Oregon | 18.6 |
| Illinois | 16.8 | Pennsylvania | 17.7 |
| Indiana | 17.2 | Rhode Island | 17.0 |
| Iowa | 18.3 | South Carolina | 22.3 |
| Kansas | 18.1 | South Dakota | 17.8 |
| Kentucky | 21.4 | Tennessee | 19.1 |
| Louisiana | 19.0 | Texas | 17.7 |
| Maine | 16.6 | Utah | 20.1 |
| Maryland | 19.4 | Vermont | 18.4 |
| Massachusetts | 17.6 | Virginia | 21.1 |
| Michigan | 17.0 | Washington | 17.0 |
| Minnesota | 20.0 | West Virginia | 19.7 |
| Mississippi | 21.3 | Wisconsin | 17.9 |
| Missouri | 18.4 | Wyoming | 19.9 |

[a] Based on a unit value of 50.0 for the federal personal income tax.

The T value of the revenue for a state can be computed from Formula 2 and the T value of local school revenue from Formula 3.

The $T_s$ value of the school revenues for each state from federal, state and local sources is shown in Table 9-6.

There is considerable variation among the states in the relative progressivity of the tax revenues used to support the public schools. The range in $T_s$ scores is from 15.7 in New Hampshire and Ohio to 24.3 in Hawaii. Attention is directed to the fact that these $T_s$ values include federal funds as well as state and local funds.

Table 9-7 shows the T value (progressivity value) of state and local school revenues only for 1968-69. This table shows that the progressivity value of school revenues is reduced for each state

TABLE 9-7

THE RELATIVE PROGRESSIVITY OF STATE AND LOCAL TAX REVENUES FOR THE PUBLIC SCHOOLS, 1968-69

| *State* | *Progressivity Value*[a] *(State and Local School Revenues Only)* | *State* | *Progressivity Value*[a] *(State and Local School Revenues Only)* |
|---|---|---|---|
| Alabama | 17.4 | Montana | 16.3 |
| Alaska | 21.1 | Nebraska | 14.8 |
| Arizona | 16.4 | Nevada | 14.2 |
| Arkansas | 16.3 | New Hampshire | 14.4 |
| California | 17.4 | New Jersey | 14.9 |
| Colorado | 16.1 | New Mexico | 16.2 |
| Connecticut | 16.9 | New York | 20.0 |
| Delaware | 22.7 | North Carolina | 20.4 |
| Florida | 14.9 | North Dakota | 15.4 |
| Georgia | 18.0 | Ohio | 14.3 |
| Hawaii | 21.9 | Oklahoma | 15.5 |
| Idaho | 17.4 | Oregon | 16.9 |
| Illinois | 16.1 | Pennsylvania | 16.2 |
| Indiana | 15.9 | Rhode Island | 15.5 |
| Iowa | 16.7 | South Carolina | 17.9 |
| Kansas | 16.0 | South Dakota | 14.2 |
| Kentucky | 17.7 | Tennessee | 15.9 |
| Louisiana | 15.8 | Texas | 14.7 |
| Maine | 14.7 | Utah | 18.9 |
| Maryland | 17.6 | Vermont | 17.7 |
| Massachusetts | 16.0 | Virginia | 18.4 |
| Michigan | 16.0 | Washington | 15.1 |
| Minnesota | 18.8 | West Virginia | 16.1 |
| Mississippi | 15.9 | Wisconsin | 16.9 |
| Missouri | 16.1 | Wyoming | 14.7 |

[a] Based on a unit value of 50.0 for the federal personal income tax.

when federal revenues are excluded. The reduction is greatest in the states receiving the highest percentages of their revenue from the federal government. When state and local revenues only are considered, the progressivity values range from 14.2 in South Dakota and Nevada to 22.7 in Delaware.

## Summary

The technique for measuring the relative progressivity of tax structures used to support the public schools presented in this chapter is not intended to be a total evaluation of the desirable and undesirable characteristics of a state's tax structure. Its purpose is to present an objective measure of the relative progressivity of the tax structure used to support the public schools in each state. No doubt, more accurate instruments for this purpose could be devised. However, it is believed that the relative ranking of the states with respect to the progressivity of their tax structures used to support the public schools as presented in this chapter is fairly accurate.

What is the optimum progressivity value of revenues used to finance the public schools as measured by the method presented in this chapter? Certainly it could not be 50 because in order for school revenues to have a progressivity value of 50, all school revenues would have to be derived from the federal personal income tax. This would not be feasible or desirable. However, it should certainly be higher than 18.54 which was the progressivity value of school revenues from federal, state and local sources in 1968-69. It is suggested that the optimum progressivity value of school revenues as measured by their progressivity in relation to the federal personal income tax be approximately 25. It is pointed out above that the progressivity value of the revenues to finance the public schools under alternative Model 1 would be 25.65. Under Model 1, 30 percent of school revenues would be provided by the federal government, 60 percent by the state and 10 percent by local school districts. Other combinations could be used, especially if states were to increase the progressivity of their state income taxes and at the same time increase the proportion of state revenue to be derived from this source.

## FOOTNOTES

1. John F. Due, "Alternative Tax Sources for Education," Chapter 10 of *Economic Factors Affecting the Financing of Education*, edited by R. L. Johns, Irving Goffman, Kern Alexander and Dewey Stollar. Gainesville, Florida. National Educational Finance Project, Volume 2.

2. *Ibid.*

3. The value of 50 is purely arbitrary. It could be any figure so long as that figure is assigned to the tax that is most progressive in relation to income.

4. *Tax Burdens and Benefits of Government Expenditures by Income Class, 1961-65*. New York: Tax Foundation, Inc., 1967.

## CHAPTER 10

# *Alternative State Finance Plans*

In Chapter 9, detailed procedures were set forth for evaluating alternative state school finance plans. Some of these procedures can be expressed in terms of objective measures and other procedures are descriptive in nature. In this chapter objective measures only will be used in evaluating alternative finance models applied to a prototype state. These alternative models will be compared by objective methods to determine: (1) the extent to which financial equalization of educational opportunity is provided and (2) the extent to which the taxes used to finance the programs are regressive or progressive.

School finance models have two major dimensions as follows: The *allocation* dimension and the *revenue* dimension. The allocation dimension includes the target populations to be served; the programs, services and facilities provided for the target populations; the computation of unit costs for the programs to be financed; determination of whether local ability and/or effort will be considered in the allocation of state funds; requirements and restraints placed on the use of state funds; and similar matters.

The revenue dimension includes the percent of revenues to be provided from each of the following sources: federal, state and local; the types of taxes to levy at each level of government; the progressivity or regressivity of different types of taxes; the amount of revenue to allocate for school support and similar matters. In this chapter we will deal only with the state and local revenue and allocation dimensions.

The principal finance models in common use in the United States and variations in those models are examined in this chapter. The financial impact of each model is compared with all other models examined on a comparable basis. In order to do this, it was found desirable to construct a prototype state with conditions somewhat representative of the nation, with real data for the districts in that state. The development of data for the prototype state is discussed next.

## THE PROTOTYPE STATE

A prototype state was constructed for the purpose of testing alternative models of state support. This prototype state was created by starting from a state which represented a wide range of conditions among the districts of that state and adding a few districts selected from another state which would further diversify the variations among the districts of the prototype state. All of the districts of the prototype state are real school districts and the data are actual data. The prototype state includes 32 districts. Each of these districts is described in the Appendix of this volume and certain data for these districts are summarized in Table 10-4. These districts are described in some detail in order that those making decisions on state school fiscal policy can determine the impact of each school finance model on a particular type of district. It is hoped that people from all states can find districts in the prototype state with which they can identify. However, it is not claimed that the prototype state is a true sample of the nation. For example, all districts included in the sample have 1,800 or more pupils and all districts operate both elementary and high schools. The prototype state actually is a model of a state with a fairly efficient school district organization. If all 50 states had as efficient a district organization as the prototype state, the total number of school districts in the United States would be reduced from some 17,000 to approximately 2,000-2,500.

It is impossible to develop a school finance plan which is equitable to the children and also equitable to the taxpayers in a state with inefficient small school districts gerrymandered so as to sequester wealth and to disequalize educational opportunity.

Therefore, the alternative models presented in this chapter are tested in a state which has a relatively efficient district organization in order that the impact of the *finance model* and not the *district organization* might be evaluated.

The prototype state includes the following types of districts:

1. Large core city districts.
2. Suburban districts.
3. Medium size city districts.
4. Small city districts.
5. Rural districts.
6. Districts with high and low equalized valuation per pupil.
7. Districts with high and low personal income per pupil.
8. Districts with a high and low percentage of the culturally disadvantaged.

## DEVELOPMENT OF ALTERNATIVE FINANCE MODELS

There are an infinite number of alternative models of state school financing. No two of the fifty states are using exactly the same model in all respects. Furthermore, some change in each state's school finance plan is made in practically every general session of the legislature of that state. Although there are an infinite number of variations in plans of school financing, it is possible to make certain useful broad classifications of alternative models and to compare the impact of these models assuming that each model is applied to the same total revenue from state and local sources. In this chapter we are dealing only with alternative models of state and local financing which can be controlled by the states. Hopefully, federal funds made available to the states can be integrated with state funds in such a manner as to supplement those funds and, therefore, have the same impact within a state as state funds.

There are, of course, infinite possible variations in the amount or relative adequacy of funds provided for the public schools of a state. In order to test the impact of the alternative models examined in this chapter, the total amount of revenue from all sources combined is held constant for all models but the sources of the revenue and the methods of allocation are varied.

As pointed out above, school finance models have two major dimensions—the allocation dimension and the revenue dimension.

### The Allocation Dimension

Following are the principal types of state school finance models classified according to the *allocation dimension*:

1. *Flat Grant Models.* Under this type of model, state grants are allocated to local school districts without taking into consideration variations among the districts in local taxpaying ability. There are two major variations of this model as follows:

    a. A uniform amount per pupil, per teacher or some other unit of need is allotted without taking into consideration necessary variations in unit costs of different educational programs and services.
    b. Variable amounts per unit of need are allocated to local school districts which reflect necessary variations in unit costs.

2. *Equalization Models.* Under this type of model state funds are allocated to local school districts in inverse proportion to local taxpaying ability. In other words, more state funds per pupil, per teacher, or other unit of need are allocated to the districts of less wealth than to those of greater wealth. As in the flat grant models, there are two main variations in the equalization models as follows:

    a. In computing the cost of the foundation program equalized, a uniform amount is allowed per pupil, per teacher or other unit of need without giving consideration to necessary variations in unit costs of different educational programs and services.
    b. Variable amounts per unit of need which take into consideration necessary variations in unit costs are used in computing the cost of the foundation programs.

### The Revenue Dimension

Ignoring federal funds, following are the principal types of state school finance models classified according to the *revenue dimension:*

1. *Complete State Support Model.*
2. *Joint State-Local Support Model.*
3. *Complete Local Support Model.*

If federal revenue is included the following additional revenue models can be added:

1. *Federal-state support model.*
2. *Federal-state-local model.*
3. *Federal-local model.*
4. *Complete federal support model.*

The impact of some of these federal related models is examined briefly in Chapter 8 of this volume.

The revenue dimension includes another variable which substantially affects the equity of state school finance models. That variable is the degree of progressivity (or regressivity) of the taxes used to support the public schools. The degree of the progressivity of a state's tax structure depends upon the type of taxes a state levies. The state has a wide range of choices in the type of taxes it levies. Taxes may be progressive, proportional or regressive. Approximately 98% of local school tax revenue is derived from property taxes. Boards of education in most states do not have much choice in the type of tax to levy. They must depend almost entirely on property taxes which are the most regressive major tax levied. Therefore, the progressivity of the tax structure used to support the public schools depends upon two factors:

1. The proportion of school revenue provided by the state and,
2. The relative progressivity of the state's revenues.

The alternative school finance models tested in this chapter include all of the dimensions described in this section.

**Major Policy Decisions**

The legislature of every state must make the following major policy decisions with respect to financing the public schools:

1. What educational programs and services will be funded in the states' school finance plan and for whom will these programs be provided?
2. Will state funds be apportioned on the flat grant basis which ignores differences in the wealth of local school districts or on the equalization basis which provides more state

funds per unit of educational need to districts of less wealth than to districts of greater wealth?

3. Will necessary variations in unit costs of different educational programs and services be recognized or ignored in allocating state funds on either the flat grant or equalization basis?

4. What proportion of school revenue will be provided by the state and what proportion from local sources?

5. How progressive (or regressive) will be the state's tax structure?

6. To what extent will the state provide for financial equalization of educational opportunity among school districts of the state?

7. What are the financial needs of the public schools and how nearly can those needs be met taking into consideration needs for other governmental services and the financial ability of the state?

A number of alternative models and variations in those models are examined in this chapter in order to assist decision making authorities in determining the consequences of decisions they make with respect to decision areas 1 to 6 listed above. Prior to testing these models, it is necessary to describe alternative methods of treating the data from the prototype state. Those methods are presented in the following section.

## UNIT COST DIFFERENTIALS USED FOR PROTOTYPE STATE

In Chapter 6 of this volume, variations in cost per pupil for different educational programs are presented. Educational programs designed to meet the many different needs of pupils vary widely in per pupil cost. For example, senior high schools cost more per pupil than elementary schools. Exceptional education programs, vocational programs and programs for compensatory education all cost more per pupil than programs provided for pupils not enrolled in these special high cost programs. Two methods are commonly used to adjust for these extra costs—the weighted pupil technique and the adjusted instruction unit, (sometimes called the adjusted classroom unit or teacher unit).

*The Weighted Pupil Technique.* The weighted pupil technique is based on the assumption that the pupil-teacher ratio is less and operating costs are higher for certain special programs and under certain conditions than for typical elementary school programs. The method usually used is to start the weighting of pupils by assigning the weight of 1 to the cost per pupil of regular pupils enrolled in elementary schools. If it is found that the cost of educating exceptional pupils (handicapped pupils) is approximately twice the per pupil cost of educating regular pupils because the per pupil-teacher ratio is only one-half of the per pupil-teacher ratio for regular elementary pupils and operating and capital outlay costs are also about twice the amount per pupil needed for regular elementary pupils, then the equivalent full time pupils enrolled in exceptional education classes are given a weight of two. Appropriate weights are also assigned to pupils enrolled in the other high cost programs. It costs more per pupil to provide educational opportunities for pupils enrolled in small isolated schools which because of distance or geographical barriers cannot be consolidated with other schools. The pupils enrolled in small, isolated schools can also be appropriately weighted.

Table 10-1 sets forth the scale used for weighting the pupils in average daily membership in the prototype state. The weights for educational programs are average weights computed from the data presented in the special studies reported in Volume 3 of the National Educational Finance Project. The weights for pupils attending necessary isolated schools were developed by the central staff from current practice. It should not be assumed that the weights presented in Table 10-1 are valid for all time. Those weights are based on current practice in school systems reputed to have good programs in the program areas that are weighted. What is current practice today may become outdated tomorrow. Therefore, the weights presented in Table 10-1 should be considered as weights derived from current practice to illustrate the methods used in weighting pupils. Furthermore, the special satellite studies made by the National Educational Finance Project revealed that the cost differentials for special educational programs varied widely among different school systems. Therefore, much additional research is needed before fully reliable cost differentials can be assigned to these special programs. However, the evidence is conclusive that vocational education, exceptional education, and compensatory education all cost more per pupil than regular educational programs. To defer

## TABLE 10-1

### Scales Used for Weighting Pupils in the Prototye State

| *Programs* | *Prototype State Target Population*[a] *(ADM)* | *Weighting For Cost Differential*[c] | *Weighted Pupils* |
|---|---|---|---|
| *Col. 1* | *Col. 2* | *Col. 3* | *Col. 4* |
| *Early Childhood* | | | |
| 3 year olds | 30,946 | 1.40 | 43,324 |
| 4 year olds | 50,813 | 1.40 | 71,138 |
| Kindergarten (5 year olds) | 56,231 | 1.30 | 73,100 |
| Sub Total | 137,990 | | 187,562 |
| *Non-Isolated Basic Elementary and Secondary* | | | |
| Grades 1–6 | 301,777 | 1.00 | 301,777 |
| Grades 7–9 | 182,961 | 1.20 | 219,553 |
| Grades 10–12 | 124,693 | 1.40 | 174,570 |
| Sub Total | 609,431 | | 695,900 |
| *Isolated Basic Elementary and Secondary*[b] | | | |
| Elementary Size | | | |
| 150–200 | 6,332 | 1.10 | 6,965 |
| 100–149 | 3,155 | 1.20 | 3,786 |
| less than 100 | 3,789 | 1.30 | 4,926 |
| Junior High | | | |
| 150–200 | 2,266 | 1.30 | 2,946 |
| 100–149 | 1,177 | 1.40 | 1,648 |
| less than 100 | 1,299 | 1.50 | 1,948 |
| Senior High | | | |
| 150–200 | 849 | 1.50 | 1,273 |
| 100–149 | 381 | 1.60 | 609 |
| less than 100 | 126 | 1.70 | 214 |
| Sub Total | 19,374 | | 24,315 |
| *Special (Exceptional)* | | | |
| Mentally Handicapped | 16,089 | 1.90 | 30,569 |
| Physically Handicapped | 2,668 | 3.25 | 8,671 |
| Emotionally Handicapped | 19,696 | 2.80 | 55,149 |
| Special Learning Disorder | 5,335 | 2.40 | 12,804 |
| Speech Handicapped | 31,152 | 1.20 | 37,382 |
| Sub Total | 74,940 | | 144,575 |
| *Compensatory Education* | | | |
| Basic: Income under $4,000 | 131,165 | 2.00 | 262,330 |
| *Vocational—Technical* | 46,502 | 1.80 | 83,704 |
| Total All Categories (Preschool—Grade 12) | 1,019,402 | | 1,398,386 |

[a] Full time equivalent membership.

[b] Elementary schools must be 10 miles or more by road from another elementary school in order to be weighted for isolation; junior high schools 15 or more miles from another junior high school and senior high schools, 20 miles or more from another senior high school.

[c] These weights vary slightly from the weights reported in Chapter 6 because a few additional districts were added to the sample from which the averages were computed.

making allowance in state support programs for the extra costs of these special programs until exact information is available on these cost differentials would be self-defeating.

It will be noted from Table 10-1 that there are 1,019,402 pupils in average daily membership in the prototype state but there are 1,398,386 weighted pupils in average daily membership. As will be shown later in this chapter the ratio of weighted pupils in A.D.M. to pupils in A.D.M. varies widely among the districts of the state. Therefore, the use of weighted pupils instead of unweighted pupils in apportioning state school funds substantially improves the equity of a state's school finance plan.

*The Adjusted Instruction Unit Technique.* This technique is actually a function of the weighted pupil technique. Let us assume that it is desired to express the state guaranteed program in terms of instruction units and that those units include all instruction personnel such as classroom teachers, principals, supervisors, guidance counselors, librarians, etc. Let us also assume that the decision has been made to allot one instruction unit for each 25 pupils in average daily membership in elementary schools for regular elementary pupils (non-high cost pupils). The pupil instruction unit ratios for all types of educational programs can be determined by dividing 25 by the same cost differential weights used to compute weighted pupils. The method of computing adjusted instruction units is set forth in Table 10-2. The number of adjusted instruction units for each program category is shown in column 5 of Table 10-2.

The relationship between weighted pupils and adjusted instruction units can readily be shown by dividing the number of weighted pupils shown in column 4 of Table 10-1 by 25. The quotient is the same number of adjusted instruction units as shown in column 5 of Table 10-2. Therefore, the weighted pupil is exactly 1/25 of the adjusted instruction unit assuming the same weights are used in calculating both units and assuming that an A.D.M. per instruction unit of 25 to 1 is desired for elementary schools. The pupil instruction unit ratio could, of course, be higher or lower and the mathematical relationship between the two units will be determined by the pupil instruction unit ratio selected.

Some states start with higher pupil-teacher ratios and compute adjusted classroom teacher units first and then increase those units by some fraction in order to provide for other in-

## TABLE 10-2

### SCALE USED FOR COMPUTING ADJUSTED CLASSROOM UNITS IN THE PROTYPE STATE

| *Programs* | *Prototype State Target Population (ADM)* | *Weighting For Cost Differential* | *Number of Pupils in ADM per Adjusted Instruction Unit*[a] | *Adjusted Instruction Units*[b] |
|---|---|---|---|---|
| Col. 1 | *Col. 2* | *Col. 3* | *Col. 4* | *Col. 5* |
| *Early Childhood* | | | | |
| 3 year olds | 30,946 | 1.40 | 17.86 | 1,733 |
| 4 year olds | 50,813 | 1.40 | 17.86 | 2,845 |
| Kindergarten (5 year olds) | 56,231 | 1.30 | 19.23 | 2,924 |
| Sub Total | 137,990 | | | |
| *Non-Isolated Basic Elementary and Secondary* | | | | |
| Grades 1–6 | 301,777 | 1.00 | 25.00 | 12,071 |
| Grades 7–9 | 182,961 | 1.20 | 20.83 | 8,784 |
| Grades 10–12 | 124,693 | 1.40 | 17.86 | 6,982 |
| Sub Total | 609,431 | | | |
| *Isolated Basic Elementary and Secondary* | | | | |
| Elementary Size | | | | |
| 150–200 | 6,332 | 1.10 | 22.73 | 279 |
| 100–149 | 3,155 | 1.20 | 20.83 | 151 |
| less than 100 | 3,789 | 1.30 | 19.23 | 197 |
| Junior High | | | | |
| 150–200 | 2,266 | 1.30 | 19.23 | 118 |
| 100–149 | 1,177 | 1.40 | 17.86 | 66 |
| less than 100 | 1,299 | 1.50 | 16.67 | 78 |

TABLE 10-2 (CONTINUED)

| *Programs* | *Prototype State Target Population (ADM)* | *Weighting For Cost Differential* | *Number of Pupils in ADM per Adjusted Instruction Unit*[a] | *Adjusted Instruction Units*[b] |
|---|---|---|---|---|
| Col. 1 | *Col. 2* | *Col. 3* | *Col. 4* | *Col. 5* |
| Senior High | | | | |
| 150–200 | 849 | 1.50 | 16.67 | 51 |
| 100–149 | 381 | 1.60 | 15.62 | 24 |
| less than 100 | 126 | 1.70 | 14.71 | 9 |
| Sub Total | 19,374 | | | |
| *Special (and/or Exceptional)* | | | | |
| Mentally Handicapped | 16,089 | 1.90 | 13.16 | 1,223 |
| Physically Handicapped | 2,668 | 3.25 | 7.69 | 347 |
| Emotionally Handicapped | 19,696 | 2.80 | 8.93 | 2,206 |
| Special Learning Disorder | 5,335 | 2.40 | 10.42 | 512 |
| Speech Handicapped | 31,152 | 1.20 | 20.83 | 1,496 |
| Sub Total | 74,940 | | | |
| *Compensatory Education* | | | | |
| Basis: Income under $4,000 | 131,165 | 2.00 | 12.50 | 10,493 |
| *Vocational—Technical* | 46,502 | 1.80 | 13.89 | 3,348 |
| Total All Categories (Preschool—Grade 12) | 1,019,402 | | | 55,937 |

[a] Computed by dividing 25 by Column 3.
[b] Computed by dividing Column 2 by Column 4.

structional personnel needed, such as principals, supervisors, guidance counselors, librarians, etc. For example, adjusted classroom teacher units could be computed by starting with 27 pupils in A.D.M. of regular pupils enrolled in elementary schools and weighting for other educational programs as shown in Table 10-2. Then total adjusted instruction units can be computed by multiplying the classroom teacher units by some fraction such as 1/8 and adding the product to adjusted classroom units. Under such a formula adjusted instruction units could be 112.5 percent of adjusted classroom teacher units.

It should not be assumed from the discussion of computation of adjusted instruction units presented in this chapter, that the pupil-teacher ratios presented are the ratios recommended by the National Educational Finance Project. The ratios presented are for the purpose of illustrating the method of calculating weighted pupils and adjusted instruction units. Subsequent research may show that higher or lower pupil teacher ratios are desirable. The pupil-teacher or pupil instruction unit ratio provided for in the state program is one of the major decisions affecting the cost of the educational program made by a legislature in its program for financing the public schools.

*Conversion of Weighted Pupils or Adjusted Instruction Units into Costs.* Weighted pupils can be converted into costs by multiplying the number of weighted pupils by a uniform allotment per weighted pupil since necessary cost differentials have already been provided for. The cost of the state guaranteed program including all current expenses except the cost of such support services as school transportation, free textbooks and school food service can be computed by multiplying weighted pupils by a uniform amount per weighted pupil. The cost of the guaranteed program can be computed from adjusted instruction units by multiplying the units by a uniform amount also. Let us assume that the legislature has decided to provide $500 per weighted pupil in A.D.M. in order to finance all current expenses other than provisions for school transportation, free textbook and school food service. The cost of the guaranteed program for each district can then be determined by multiplying the weighted pupils for that district by $500. If the cost of the program is computed from adjusted instruction units shown in Table 10-2, the units are multiplied by $12,500. The total cost of the program for each district would be identical regardless of which method is used. Since these methods are equivalent mathematically, the legislature should select the method which it believes will be most acceptable in that state. The weighted pupil technique may be easier to manipulate mathematically but the adjusted instruction unit may be easier for the lay public to understand than the weighted pupil. The weighted pupil is used in this chapter to compare alternative state school finance models although the adjusted instruction unit could have been used just as effectively.

The cost of the state guaranteed program for capital outlay can also be computed fairly equitably in terms of weighted pupils or adjusted classroom units.

Attention is directed to the fact that the use of adjusted instruction units or weighted pupils to adjust for high cost programs in allocating state funds in effect establishes a type of educational program budget because a district cannot obtain adjusted instruction units or weighted pupils for high cost programs unless it actually provides those services. The use of adjusted instruction units or weighted pupils in state apportionment makes it possible for districts that have unusual needs for high cost programs to provide those programs. It also assures the state that target populations who need these programs will have them available. The use of program budgeting in the state plan of apportionment has all the advantages of categorical aids for special educational programs without the disadvantages of the fragmented uncoordinated budgeting resulting from a wide use of categorical grants. The adjusted instruction unit has some advantages over the weighted pupil unit in developing a program budget because the adjusted instruction unit reveals the number of instructional personnel provided for in state finance plans for each educational program area. Since capital outlay needs and other operating costs are closely associated with instruction units, the state legislature is enabled by this method to make a state total estimate of the funds allocated to each educational program area in its finance plan.

*Differential Costs of Pupil Transportation.* It has long been recognized that the cost per pupil transported varies widely among school districts due largely to variations in the density of transported pupils. States allocating state funds for transportation usually allot more funds per pupil for districts with a low pupil density of transported pupils than to districts with a high

TABLE 10-3

TABLE FOR COMPUTING COST DIFFERENTIALS FOR SCHOOL TRANSPORTATION

| *Number of Pupils Transported Per Route Mile (One Way)* | *Allotment Per Pupil Transported Per Year* |
|---|---|
| Below .5 | $90.00 |
| .5 – .74 | 77.00 |
| .75– .99 | 65.00 |
| 1.00–1.24 | 55.00 |
| 1.25–1.49 | 49.00 |
| 1.50–1.74 | 43.00 |
| 1.75–1.99 | 40.00 |
| 2.00–2.24 | 37.00 |
| 2.25–2.99 | 34.00 |
| 3.00–3.49 | 32.00 |
| 3.50–3.99 | 31.00 |
| 4.00 and above | 30.00 |

density. Table 10-3 presents an example of such a scale. It will be noted that the allotment per pupil transported is three times as much in the district with the lowest density of transported pupils as in the districts with highest density. It should not be assumed that this is an ideal scale of cost differentials for pupil transportation. Costs vary from state to state and from year to year. This scale was used for the purpose of illustrating how necessary cost differentials may be computed for transportation and it was used in computing the allotment for transportation in the alternative finance models analyzed in this chapter.

*Computing the Cost of Other Programs and Services.* As pointed out above, capital outlay costs can be computed fairly equitably in terms of weighted pupils or adjusted classroom units. Alternative plans for financing the capital outlay needs of the public schools are discussed in some detail in Chapter 7 of Volume 3 of the National Educational Finance Project entitled *Planning to Finance Education.*

Costs of the school food service program to include in the state school finance plan should be based on the number of children served, the type of lunch served, the number of needed free and reduced price lunches served and perhaps other factors. Various models for financing the school food service program are discussed in Chapter 8 of Volume 3 of the National Educational Finance Project.

Computations for capital outlay needs and school food service needs are not included in the alternative finance models examined in this chapter, not because these functions are not important but in order to simplify the computations and analyses presented.

Some states provide for school food service, capital outlay, textbooks and certain other items through state categorical grants. This may be desirable for certain budget items but categorical grants should be held to a minimum in order to increase the efficiency of administration. Even if categorical grants are provided, these grants should be included in the same state appropriation package as general aid in order that the legislature may be facilitated in determining relative priorities it assigns to different educational program and service areas provided for in the state's finance plan.

*Other Factors that Might be Considered in Determining Necessary Cost Differentials.* There are some other factors that might affect unit costs for an equivalent quality of educational services. One of the most commonly mentioned factors is variations in the cost of living among the districts of a state. The National Educational Finance Project did not have the resources to make an in-depth study of necessary variations among the districts of a state in the cost of living for an equivalent standard of living. Usually a board of education spends 75 to 80 percent of its operating budget for salaries and wages. Variation among the districts in rents would affect the living costs of personnel employed by boards of education. Undoubtedly, rents are higher in some urban areas of high density than in some rural areas. However, the cost of obtaining medical services and other amenities of life is higher in remote rural areas than in urban areas because of the extra travel required. Since the National Educational Finance Project did not have data available on which it could make estimates of necessary variations in unit costs of education due to variations in the cost of living, no weighting for this item was provided for in the prototype state.

The quality of teachers provided in a school district or in an individual school within a district undoubtedly affects the quality of education provided more than any other single factor. In order to have substantial equality of educational opportunity the pupils of different districts and different schools within a district should have equal access to the best quality of teachers. Placement bureaus of teacher education institutions find that many of their graduates will not accept positions in remote rural areas with no cultural advantages or in urban ghettos when they have the choice of accepting positions in middle class suburban or urban areas. There is some reason to believe that in order to give the pupils in remote rural areas and in ghetto urban areas equal access to the quality of teachers available in other areas that extra supplements should be made to the salaries of teachers employed in such areas. The National Educational Finance Project did not have the resources to make studies of the cost differentials necessary to accomplish these purposes. Therefore, no weighting for these items was provided for in the prototype state.

It might seem that the National Educational Finance Project is overemphasizing the importance of cost differentials. However, it seems safe to predict that in the future the federal and state governments will inevitably be compelled to provide a much higher percent of school revenues than at the present time if educational needs are to be met. As we move to more central funding of school costs, it is essential that central governments provide for necessary variations among school districts in unit costs or they will disequalize the educational opportunities they are attempting to equalize.

## METHODS OF TESTING ALTERNATIVE MODELS

Eighteen alternative models of state school finance programs are analyzed in this chapter. These models encompass all of the major decisions that must be made by a legislature except the adequacy of the program provided. Table 10-4 presents certain information for each of the 32 districts in the prototype state. The districts are listed in order of equalized valuation per weighted pupil in average daily membership. This procedure is followed in all the tables, 10-4 to 10-22 presented in this chapter. Detailed information for each district of the prototype state is presented in the Appendix of this volume. Tables 10-5 to 10-22 present detailed analyses of the application of each of the eighteen models to the 32 districts of the prototype state. Table 10-23 presents a summary of the evaluation of each of the eighteen models by three objective methods. Figures 10-1 to 10-19 present a graphical picture of each model.

### Methods of Evaluation of Models

The three objective methods used to evaluate each model are as follows:

1. Average deviation from full equalization.
2. Score on the National Educational Finance Project scale for measuring the extent of financial equalization of the state's finance program.
3. Score on the National Educational Finance Project scale for measuring tax progressivity.

The average deviation from full equalization is computed by assuming that the same total revenue from state and local revenues is available in all eighteen models, but methods of allocation and sources of revenue differ. A computation is made on the basis of weighted pupils and necessary transportation costs showing the total amount of funds each district would have, if each district had the same amount of money available per weighted pupil and its necessary transportation costs. In other words, this computation shows the revenue that each district would have available if complete financial equalization were provided throughout the state. Then, the deviation of each district from complete equalization is computed. This computation shows the financial impact of each model on each district of a state and is reported in Tables 10-5 to 10-22.

The National Educational Finance Project scale for measuring the extent of financial equalization of educational opportunity is described in detail in Chapter 9 of this volume. The score on the NEFP scale is very highly correlated negatively with the measure "average deviation from full equalization." The minimum score on this scale is 1 and the maximum score is 8.4. The advantage of the NEFP scale is that it can be used quickly to evaluate a proposed change in a state's finance model without computing the impact of the change on all districts of a state.

The Tax Progressivity scale is also discussed in detail in Chapter 9. In applying this scale to the prototype state, the assumption is made that the prototype state had a state tax structure equivalent to the progressivity of the tax structure of the average state. Any state could, of course, increase or decrease the progressivity of its state tax structure by increasing or decreasing the proportion of its tax revenue derived from relatively progressive taxes.

### Assumption Made for All Models

In order to compare these eighteen models on the same basis it was necessary to make the following assumptions:

1. That the same total revenue was available for all models but the proportion from state and local sources varied.
2. That all districts levied the legal limit of taxes permitted by the state. This might seem unrealistic but it does represent a comparable measure of the local tax revenue potential of each district.

### List of Models Tested

Following is a list of the eighteen models tested and a brief description of each:

1. *Flat grant models* with the same total revenue and the same proportion from state and local sources with different methods of apportionment.

MODEL I-A Flat grant of $500 per pupil in A.D.M., unweighted pupils, no aid for transportation, local tax rate 12 mills.

MODEL I-B Same total state funds as Model I-A but state funds are distributed on the basis of weighted pupils, and need for transportation and same local funds as Model I-A.

2. *Equalization models* with the same total state funds and same total local funds as MODEL I-A.

MODEL II-A Strayer-Haig equalization formula, unweighted pupils, transportation allotment, 5 mills required local effort, 7 mills local leeway.

The Strayer Haig equalization formula (or an adaptation of that formula) is the most commonly used model for apportioning state school funds. Under this formula the cost of the foundation program which the legislature desires to guarantee for each district is computed and from that cost is deducted the amount of funds which each district can raise locally through a minimum required local tax effort and the difference is allocated to the district from state funds. Although this model seems simple, there are numerous variations in the elements of the model which have a profound impact on the finances of local school districts. The impact of some of these variations is revealed in the tables presented below.

MODEL II-B Same as Model I-A except pupils are weighted.

MODEL II-C Same as Model II-B except required local effort is 10 mills and local leeway 2 mills.

MODEL II-D Complete equalization, same as Model II-A except required local effort is 12 mills and there is no local leeway.

3. *Percentage Equalizing Formula.*

MODEL III The state's share of the cost of the foundation program of a district under this formula is computed by multiplying the cost of the foundation program of any district by 100 percent minus a predetermined percentage figure which, in turn, is multiplied by the quotient of the equalized value of property of the district divided by the state average equalized value of property per weighted pupil. Let A equal the cost of the foundation program; D, the equalized value of property per pupil in the district; S, the state average equalized value of property per pupil; and E, the predetermined constant factor. Then the state aid for district under this formula equals the cost of the foundation program (A) multiplied by $1-[\frac{D}{S}\times E]$. Despite its seeming complexity, this formula gives exactly the same result as the Strayer-Haig formula when applied to measures of need based on weighted pupils or adjusted instruction units for any given level of foundation program.[2] This is demonstrated in Tables 10-8 and 10-11.

4. *Flat Grant* models with the same total revenue as in Model I-A but increasing the proportion of revenues from state sources and decreasing local revenue.

MODEL IV-A Apportionment method the same as Model I-B, but limit local revenue to 7 mills and increase state appropriation the equivalent of 5 mills.

MODEL IV-B Same as IV-A but limit local revenues to 4 mills and increase state appropriation the equivalent of 8 mills.

MODEL IV-C Complete equalization apportionment method same as IV-A except no local millage and state appropriation increased the equivalent of 12 mills.

5. *Equalization models* with the same total revenue as Model I-A but increasing the proportion of revenue from state sources and decreasing local revenue.

MODEL V-A Apportionment according to method of II-B, 7 mill limit on local taxes, 4 mill required effort, 3 mill leeway and state appropriation increased the equivalent of 5 mills.

MODEL V-B Same as V-A except 4 mill limit on local taxes, 2 mill required effort, 2 mill local leeway and increased state funds the equivalent of 8 mills.

MODEL V-C Complete equalization—same as V-A except no local taxes and state appropriation increased the equivalent of 12 mills.

6. *Flat grant* models with the same total revenue as I-A but increasing the proportion of revenue from local sources and decreasing state revenue.

MODEL VI-A Apportionment method the same as I-B, 50% of revenue from state sources and 50% local revenue, local tax rate 16.3 mills.

MODEL VI-B Same as VI-A except state revenue 25%, local revenue 75% and local tax rate 24.452 mills.

7. *Equalization models* with the same total revenue as I-A but increasing the revenue from local sources and decreasing state revenue.

MODEL VII-A 50% of revenue from state sources, 50% from local sources, apportionment according to method II-B, except total local millage of 16.3 mills, 11 mills required effort and local leeway of 5.3 mills.

MODEL VII-B Same as VII-A except state revenue 25%, local revenue 75%, local millage 24.452, required local effort of 10 mills and local leeway of 14.452 miles.

8. *Complete local support model.*

MODEL VIII Same total revenue as Model I-A, all local revenue, local tax rate of 32.6024 mills.

## ANALYSIS OF IMPACT OF ALTERNATIVE MODELS TESTED

Some variations among the 32 districts of significance to school financing are presented in Table 10-4. The districts range from 1,811 pupils in average daily membership to 208,014. The range in weighted pupils in average daily membership is from 2,404 to 324,828. The 32 districts in Table 10-4 are listed in order of equalized valuation per weighted pupil from highest to lowest. It will be noted that the district of greatest wealth has approximately six times the equalized valuation per weighted pupil as the district of least wealth.

Variations in the relationship of weighted pupils to pupils in average daily membership are of great significance to school financing. For example, in District 3, a large wealthy, urban district, weighted pupils are 130 percent of pupils in A.D.M. In District 25, a large, urban district of less than average wealth, weighted pupils are 156 percent of pupils in A.D.M. Thus, District 25 not only has a higher percentage of high cost pupils than the state average but it has considerably less wealth per pupil than the state average. All large urban districts do not have the same conditions. Some are much wealthier than others and some have a much higher percent of disadvantaged high cost pupils than other cities similar in size. To ignore these variations in a state school finance plan is to fail to equalize educational opportunity.

The same type of variations exist among small districts. For example, in District 4, a relatively small, wealthy district, weighted pupils are 130 percent of A.D.M. but in District 29, a relatively small district, far below the state average in wealth, weighted pupils are 149 percent of pupils in A.D.M.

The extent to which the alternative finance models tested equalize the financial support of the public schools and provide progressivity in the tax structure for school support is presented in the remainder of this section.

### Flat Grant Models with the Same Total Revenue and the Same Proportion from State and Local Sources

Two models are examined under this classification. In Model I-A, the state allotment is computed simply by multiplying $500 times the A.D.M. of each district and each district has the potential of local revenue equal to 12 mills times its equalized valuation. Table 10-5 shows that under this model state funds would total $509,700,000 and local funds $296,874,000 making a total revenue of $806,574,000. All of the alternative models from Model I-A through Model VIII are computed on the basis of approximately $806,574,000 of total revenue available for the support of the public schools but the models vary in the proportions from state and local sources and in methods of apportionment. The $500 per pupil in A.D.M. was arbitrarily selected. It is not suggested that this is the amount of state revenue that a state should provide. The $500 per pupil in A.D.M. was selected purely for purposes of illustration and a basis of comparison.

Model I-A is one of the most primitive methods of apportioning state school funds. It does not recognize variations in local tax paying ability, necessary variations in pupil costs or variations in transportation needs. Table 10-23 shows an average deviation of 15.42 percent from full equalization for Model I-A and a score of 4.3 on the NEFP scale. The average deviation from the full equalization scale is negatively correlated with the score on the NEFP scale. The scores on the NEFP scale range from 1 for no equalization to 8.4 for complete equalization. The scores on the average deviation from full equalization range from 0 for complete equalization to 30.98 for no equalization for the models tested.

The failure of Model I-A to financially equalize educational opportunity is more fully revealed in Table 10-5. This table shows that District 1, the district of greatest wealth per pupil would have revenue equal to 161 percent of the revenue required for complete equalization in the state and that District 31, the district next to the lowest in wealth would have only 70 percent of the revenue required under complete equalization. This is highly significant because under Model I-A the state provides 63 percent of total school revenue but the state appropriation is distributed so crudely in relation to educational need that educational opportunity is far from equalized in the prototype state. Table 10-5 shows that the districts of below average wealth in general do not receive enough state aid under Model I-A to provide educational opportunities comparable to the districts of above average wealth. Despite the inequity of this model, a considerable amount of state school revenue in the nation is still being distributed on some type of a flat per pupil basis in A.D.A., A.D.M. or census basis.

Model I-B is an improvement over Model I-A. Under Model I-B, the same state revenue, $509,700,000 is apportioned to the 32 districts but it is apportioned on a weighted pupil basis after providing for the necessary costs of transportation. The computations for this model are shown in Table 10-6. It is noted that the district of greatest wealth, District 1, will have 154 percent of the revenue available required for complete equalization and District 32, the district of least wealth, 78 percent. Table 10-23 shows an average deviation of 11.40 percent from full equalization and an NEFP score of 5.1. This is some improvement over Model I-A but educational opportunities are still far from equalized under Model I-B.

A profile of the revenue available per weighted pupil from state and local sources under Model I-A is presented for 16 randomly selected districts of the prototype state, ranging from the most wealthy to the least wealthy. Revenue available for transportation was excluded in order to place all districts on a comparable basis. Only 16 districts, the odd numbered districts, are included in the graph in order to simplify the presentation. Comparing Figure 10-1 with Figure 10-2, it is noted that the length of the bars for the 16 districts is more nearly uniform under Model 10-B than Model 10-A. The impact of each finance model on each of the 16 districts is graphically presented for all models examined. The equalization qualities of all models can be compared from these figures because the more nearly uniform the length of the bars for a model, the greater its equalizing qualities.

### Equalization Models with the Same Total State Funds and Total Local Funds as Model I-A

Four models are examined under this classification. Under Model II-A, the cost of the foundation program is computed on the basis of A.D.M. (unweighted pupils) and the necessary costs of transportation. Each district is required to contribute the yield of a 5 mill levy on its equalized valuation to the costs of its foundation program and the balance is provided by the state. Each district has 7 mills local leeway. Table 10-23 would indicate that Model II-A would not be any improvement over Model I-B because both models have almost the same average deviation from full equalization scores and NEFP scale scores. However, Table 10-7 shows that Model II-A is a considerable improvement in equalization over Model I-B because the range in percent of complete equalization is much less. Under Model II-A the scores range from 138 percent of full equalization in District 1 to 81 percent in District 31, the district next to the bottom in per pupil wealth. Table 10-6 shows that the range for Model I-B is from 154 percent to 78 percent.

Model II-B is a marked improvement over Model II-A because the pupils are weighted in Model II-B. Other provisions of Model II-B are exactly the same as under Model II-A. Table 10-23 shows that Model II-B has an average deviation from full equalization score of 6.65 and an NEFP score of 6.3. Table 10-8 shows that the district of greatest wealth has 131 percent of the revenue required for complete equalization and the district of least wealth 87 percent.

Model II-C is exactly the same as Model II-B except that the required local effort in support of the foundation program is 10 mills and the local leeway is two mills. Table 10-23 and Figures 10-4 and 10-5 show that Model II-C much more nearly equalizes educational opportunity than Model II-B. The average percent deviation from full equalization is only 1.90 and the score on the NEFP scale is 7.6. Table 10-9 shows that under Model II-C, that the district of greatest wealth has only 109 percent of the revenue required for full equalization and the district of least wealth, 96 percent. A comparison of Models II-B and II-C shows that the greater the *local tax leeway*, the greater the financial *disequalization* from a given amount of state and local revenue. The local tax leeway under Model II-B is 7 mills and under Model

II-C, 2 mills. Furthermore, a comparison of these two models also shows that the *greater the proportion* of the legal limit of local taxes that districts are required to contribute to the cost of the foundation program, the *greater the financial equalization of educational opportunity.*

Model II-D shows what would happen if all districts were required to contribute the full amount of the yield of the legal local tax limit (in this case 12 mills) to the cost of the foundation program. This would provide for complete equalization because its effect would be to convert the local tax levy of 12 mills to a state levy of a like amount for schools. Table 10-23 shows that the average deviation from complete equalization would be 0 under Model II-D and the NEFP score would be 8.4. Table 10-10 shows the amount of revenue each district would have available under full financial equalization assuming total revenue of approximately $806,574,000 from state and local sources is available.

### The Percentage Equalizing Formula

Model III is the percentage equalizing formula (sometimes called the state aid ratio formula) described earlier in this chapter. The computations for this formula are shown in Table 10-11. It is noted, that except for deviations due to rounding of totals, the computations for Model III are the same as for Model II-B because they are based on the same unit costs and the same percent of state funds contributed to the cost of the foundation program and a required minimum level foundation program. The percentage equalizing formula is only a mathematical manipulation of the Strayer-Haig formula. Table 10-11 shows that, excluding transportation, the state contributes 51.193 percent of the cost of the foundation program to District 1. This same percentage can be computed from Table 10-8 for Model II-B as follows: Deduct $28,140, the amount allocated for transportation from $4,073,537, the total state funds allocated to District 1 and divide the remainder by $7,902,210, the total cost of its foundation program, excluding transportation and the quotient is 51.193 percent.

A state may wish to establish a variable level foundation program for its districts depending upon the local tax effort the district makes. The percentage equalizing formula can be converted into a state aid ratio formula as follows: Divide the state percentage for a district by its local percentage and the quotient is the ratio of state aid dollars to local dollars. Using District 1 as an example: 51.193 the state percentage divided by 48.807, the local percentage equals 1.0488. This quotient multiplied by $3,857,000, the yield of a 5 mill levy in District 1, equals $4,045,000, which is equivalent to the state contribution for the W.A.D.M. allotment computed by the percentage equalizing formula shown in Table 10-11.

The original Strayer-Haig formula has the advantage over the percentage equalizing formula in that under the Strayer-Haig formula, the allowable costs of transportation can be included as a part of the foundation program but under the percentage equalizing formula, the costs of transportation must be provided for under a special categorical appropriation if the penalization of districts with a heavy burden of transportation is avoided. For example, if each district had to provide the same percent of the cost of transportation as the percent required for the remainder of its foundation program, District 2, under the percentage equalizing formula, would be required to use no local funds for this purpose because it has no transportation needs. District 10 has allowable transportation costs totalling $2,275,000. Under the percentage equalizing formula, it would have to provide 23 percent of this cost from local funds. This would amount to $523,000 or 12 percent of its local revenue whereas District 2 would not have to use any of its local revenue for this purpose.

There is another important difference between the percentage equalizing adaptation of the Strayer-Haig formula and the original Strayer-Haig formula. The percentage equalizing formula can be used to allocate state funds for any level of state support ranging from 0 to no limit. Under the percentage equalizing formula, a district would receive no state funds if it levied no local taxes because under this formula, state funds equal the state aid ratio for that district multiplied by the yield of its local levy. Under the original Strayer-Haig formula, state aid equals the difference between the cost of a district's foundation program and the yield of a required minimum local tax effort. Under the Strayer-Haig formula, the district that levied 0 local taxes would still receive the state's portion of its foundation program. Therefore, the penalty for lack of local tax effort is greater under the percentage equalizing formula. Actually, no state using the percentage equalizing formula could permit a local district to levy 0 taxes because if it did, the public school system would be abolished in a district levying 0 taxes. Therefore, any state using the equalization model, regardless of the formula must set some type of minimum required effort. It would seem better policy for a state to mandate the minimum required minimum local effort regardless of whether the percentage equalizing formula or the Strayer-Haig formula is used. To leave the required minimum effort optional under either formula prevents the state from assuring any foundation program of education for all children in a state.

The percentage equalizing formula has been used as an incentive to increase local tax effort by matching local funds raised by the local school district in addition to the required minimum effort on the same percentage basis as is used in allocating funds for the required minimum foundation programs. This in effect establishes a *variable level* foundation program varying for each district in proportion to the local effort it is willing to make, but all districts, regardless of variations in per pupil wealth could have the same level of foundation program, if they made the same effort. Exactly the same incentive could be provided under the Strayer-Haig formula if the state would establish a variable level foundation program depending upon variations in local effort instead of setting a uniform fixed level for the foundation program. A financial incentive for increased local tax effort to support schools has some advantages but it also has some disadvantages as is pointed out later in this chapter.

### Flat Grant Models with the Same Total Revenue as Model I-A But Increasing the Proportion from State Sources and Decreasing Local Sources

Under Model IV-A, state funds are apportioned under the same method as I-B but total state revenue is increased the equivalent of the yield of a 5 mill levy on the equalized valuation and local taxes are reduced from 12 mills to 7 mills. Table 10-23 shows the flat grant Model IV-A is a considerable improvement over flat grant Model I-B because average deviation from full equalization is reduced from 11.40 to 6.65 and the NEFP score is increased from 5.1 to 6.4. When Table 10-6 is compared with Table 10-12, it is observed that the range in deviation is 154 percent to 78 percent for Model I-B and 131 percent to 87 percent for Model IV-A.

Flat grant Model IV-B greatly advances financial equalization because under this model, the state appropriation is increased the equivalent of 8 mills and local property taxes are reduced from 12 mills to 4 mills. Table 10-23 shows that Model IV-B has an average deviation of only 3.8 percent from full equalization and an NEFP score of 7.2. Table 10-13 shows that the deviations from full equalization of the districts of greatest wealth from full equalization as compared with the districts of least wealth are also greatly reduced. It is noted when comparing Models I-B, IV-A and IV-B, that the higher the percent of total revenue provided from state sources, that the greater the possibility of financial equalization by a flat grant model.

Under Model IV-C, state funds are increased the equivalent of 12 mills and local taxes for schools abolished. This, of course, provides for complete equalization. It is equivalent to the Hawaii plan for school financing.

### Equalization Models with the Same Total Revenue as Model I-A But Increasing the Proportion of Revenue from State Sources and Decreasing Local Revenue

Under Model V-A, apportionment is made according to the Model II-B except that state revenue is increased the equivalent of 5 mills, local revenue is reduced to 7 mills, 4 mills of which is used for required local effort to support the foundation programs, leaving a local leeway of 3 mills. Table 10-23 shows that Model V-A provides considerably more financial equalization than Model II-B. Average deviation from full equalization is reduced from 6.65 percent to 2.85 percent and the NEFP score is increased from 6.3 to 7.2.

Model V-B further advances financial equalization. Under this model, the state appropriation is increased the equivalent of 8 mills, local taxes are reduced from 12 mills to 4 mills, 2 mills of which is required for the support of the foundation program and 2 mills is left for local leeway. The average deviation from full equalization of Model V-B is only 1.90 percent and the NEFP score is 7.5. Table 10-16 shows that under Model V-B, the district of greatest wealth has total revenue available equal to 109 percent of full equalization and the revenue available to the district of least wealth equals 96 percent of full equalization.

A comparison of Models II-B, V-A and V-B also shows that the greater the percent of school funds provided from state sources, the greater the possibility of equalizing financial resources under equalization formulas.

A comparison of all flat grant models with all equalization models reveals that with a given amount of state money, it is possible to more nearly financially equalize financial resources with an equalization model than with a flat grant model.

A comparison of Model IV-B with Model V-B shows that as we approach full state funding, that differences between flat grant models and equalizing models begin to disappear provided that necessary variations in unit costs are incorporated in both types of models. Approximately 88 percent of total revenue is provided by the state in Models IV-B and V-B.

Model V-C is identical with Model IV-C showing that the terminal point of both flat grant and equalization models is complete equalization as we approach full state funding.

### Flat Grant Models with the Same Total Revenue as Model I-A but Increasing the Proportion of Revenue from Local Sources and Decreasing State Revenue

Under Model VI-A, state funds are apportioned according to the method of I-B but 50% of total revenue is provided from state sources and 50% from local sources. This requires an increase of the local levy from 12 mills to 16.3 mills. Table VI-A shows that this policy decreases equalization. Comparing Model VI-A with I-B, the average deviation from full equalization is increased from 11.40 percent to 15.48 percent and the NEFP score is reduced from 5.1 to 4.1. Comparing Table 10-5 with 10-18, the range in percent of full equalization is increased from 78 to 154 for Model I-B to 70 to 173 for Model VI-A.

Model VI-B is the same as Model VI-A except that local taxes provide 75 percent of total revenue, state sources 25 percent and it is necessary to increase the local tax levy to 24.452 mills. This model further disequalizes financial equalization. As compared with Model VI-A, the average deviation from full equalization is increased from 15.48 percent to 23.23 percent and the NEFP score is reduced from 4.1 to 2.4. Furthermore, Table 10-19 shows that the district of greatest wealth would have revenue available equal to 209 percent of full equalization whereas the district of least wealth would have only 56 percent of the revenue required for full equalization.

### Equalization Models with the Same Total Revenue as I-A but Increasing the Revenue from Local Sources and Decreasing State Revenue

Under Model VII-A, 50 percent of the revenue is provided from state sources, 50 percent from local sources, the local levy is 16.3 mills, 11 of which is required in support of the foundation program leaving a local leeway of 5.3 mills. The requirement of 11 mills of local effort was selected so that the district of greatest wealth would receive no state funds. Under this model, average deviation from full equalization is increased from 1.90 percent in Model V-B to 5.03 percent and the NEFP score is reduced from 7.5 to 7.2. Although all of the state's revenue is used for equalization purposes under Model VII-A, it is noted that the possibility of financial equalization under an equalization model is not as great when the state provides 50 percent of state revenue as when it provides a higher percent of school revenue.

Model VII-B shows more clearly the effect on financial equalization of educational opportunity when the percent of local revenue is increased and state revenue decreased. Under this model, 75 percent of revenue is obtained from local sources, 25 percent from state sources, the local tax rate increased to 24.452 mills, 10 mills of which is required in support of the foundation program leaving a local leeway of 14.452 mills. The required local effort of 10 mills was selected because the districts of greatest wealth would receive no state revenue under this requirement. Despite the fact that all of the state revenue is used for equalization, when the state provides only 25 percent of total revenue, the average deviation from full equalization is increased from 5.03 in Model VII-A to 14.25 in Model VII-B and the NEFP score is decreased from 7.2 to 5.1. A comparison of Table 10-6 with Table 10-21 and data presented in Table 10-23 for Models I-B and VII-B will show that a flat grant model when the state provides 63 percent of the revenue will equalize educational opportunity better than an equalization model when the state provides only 25 percent of the revenue. However, a comparison of Model VI-B with Model VII-B shows that if a state provides only 25 percent of school revenue from state sources, an equalization model will provide much more financial equalization than a flat grant model.

### Complete Local Support Model

Under this model, the same total revenue is provided as under Model I-A but all of it is provided from a local levy in each district of 32.6024. This model provides for no financial equalization whatsoever. The average deviation from full equalization is 30.98 percent and the NEFP score is 1, the lowest possible score on that scale. Tables 10-22 shows that the wealthiest district would have 248 percent of the revenue required for full equalization and the district of least wealth only 39 percent. It can be computed from data in Tables 10-4 and 10-10 that if there were no limits on the mills of local taxes District 1 could obtain the equalized foundation program shown in Table 10-10 with a levy of only 13 mills whereas it would require a levy of 83 mills in District 32, the district of least wealth. This condition shown in the prototype state is typical of the conditions found in most states.

### Comparison of Progressivity of Tax Structure Under Alternative Models

Table 10-23 shows the tax progressivity score for each model computed in accordance with the methods described in Chapter 9 of this volume. It is observed from this table that the tax progressivity score is 18.10 for all models from Model I-A through Model III. This is due to the fact that the proportion from state and local sources is the same for these models. In making the computations of the progressivity scores for the prototype state the assumption was made that its state tax progressivity score was the same as the average state and the local score was also the same as the average state. Table 9-4 shows that the state tax progressivity score for the average state in 1969 was 20.49 and the local tax score 14.00. However, if the assumption had been made that the state tax progressivity score of the prototype had been as high as Oregon, 26.7 percent (see Table 9-5) the progressivity score for all of these models would have been higher. The data presented in Chapter 9 of this volume show the following:

1. The higher the percent of state revenue derived from relatively progressive taxes, the higher the progressivity score of a state's tax structure.
2. The higher the percent of state revenue in relation to local tax revenue, the higher the progressivity score of the state's school finance plan.
3. The higher the percent of school revenue provided from federal sources in relation to state and local sources, the higher the progressivity score of a state's school finance plan. The progressivity score for federal revenue for 1969 was 39.90 (see Table 9-4).

   For example, the tax progressivity score would be 25.65 under a revenue model with 30 percent of the school revenue provided by the federal government, 60 percent by the state and 10 percent by local school districts.

Table 10-23 shows that the progressivity scores for flat grant Models IV-A through IV-C increase as the percent of state revenue increases. The same trend is observed in equalization Models V-A through V-C. However, when the percent of state funds is reduced, the tax progressivity score decreases as shown in flat grant Models V-A and VI-B and equalization Models VII-A and VII-B. Models VIII, the complete local support model, has a tax progressivity score of 14.00, the lowest possible score.

## SOME OTHER ALTERNATIVES

There are numerous other possible variations in school finance models. Some of those possible variations are discussed below.

### Other Variations in Models Examined

Following is a list of some of the possible variations:

1. Various program elements, such as pre-school programs and special programs might be added or subtracted.
2. Cost differentials could be varied.
3. Special supporting services and facilities such as school food service, transportation, summer programs and capital outlay could be added or subtracted.

### TABLE 10-4

### AVERAGE DAILY MEMBERSHIP, WEIGHTED AVERAGE DAILY MEMBERSHIP AND EQUALIZED VALUATION OF THE PROTOTYPE STATE

| *District* | *Average Daily Membership* | *Weighted Average Daily Membership* | *Equalized Assessed Valuation (in thousands)* | *EAV Per Pupil in WADM (in Dollars)* |
|---|---|---|---|---|
| 1 | 14,230 | 17,934 | 771,363 | 43,011 |
| 2 | 10,481 | 13,644 | 560,413 | 41,074 |
| 3 | 32,532 | 42,274 | 1,286,623 | 30,435 |
| 4 | 123,318 | 160,101 | 4,624,308 | 28,884 |
| 5 | 5,197 | 7,682 | 181,070 | 23,571 |
| 6 | 10,179 | 13,223 | 293,313 | 22,182 |
| 7 | 15,220 | 19,712 | 429,791 | 21,804 |
| 8 | 1,811 | 2,404 | 51,978 | 21,621 |
| 9 | 7,058 | 10,792 | 226,790 | 21,015 |
| 10 | 137,329 | 177,038 | 3,586,843 | 20,260 |
| 11 | 3,231 | 4,070 | 78,197 | 19,213 |
| 12 | 4,730 | 6,164 | 118,360 | 19,202 |
| 13 | 4,065 | 6,014 | 107,516 | 17,878 |
| 14 | 165,324 | 209,378 | 3,715,068 | 17,743 |
| 15 | 4,761 | 7,238 | 122,025 | 16,859 |
| 16 | 16,649 | 22,202 | 348,643 | 15,703 |
| 17 | 73,945 | 97,005 | 1,512,960 | 15,597 |
| 18 | 21,240 | 30,139 | 458,200 | 15,203 |
| 19 | 30,017 | 39,044 | 555,443 | 14,226 |
| 20 | 14,861 | 20,902 | 292,053 | 13,972 |
| 21 | 25,011 | 35,508 | 495,610 | 13,958 |
| 22 | 18,968 | 27,516 | 341,873 | 12,425 |
| 23 | 6,124 | 9,173 | 110,308 | 12,025 |
| 24 | 7,245 | 11,612 | 129,830 | 11,181 |
| 25 | 208,014 | 324,828 | 3,580,364 | 11,022 |
| 26 | 13,918 | 19,042 | 209,837 | 11,020 |
| 27 | 13,577 | 19,353 | 200,515 | 10,361 |
| 28 | 2,503 | 3,131 | 32,243 | 10,298 |
| 29 | 11,284 | 16,838 | 141,236 | 8,388 |
| 30 | 5,531 | 8,139 | 60,105 | 7,385 |
| 31 | 6,064 | 9,116 | 66,219 | 7,264 |
| 32 | 4,985 | 7,171 | 50,616 | 7,058 |
| Totals | 1,019,401 | 1,398,386 | 24,739,630 | — |

4. Other modifying factors such as training and experience of teachers could be included or excluded.
5. Sources of state revenue could be varied.
6. Sources of local revenue could be varied.
7. Measures of local ability in equalization models could include factors other than equalized valuation.

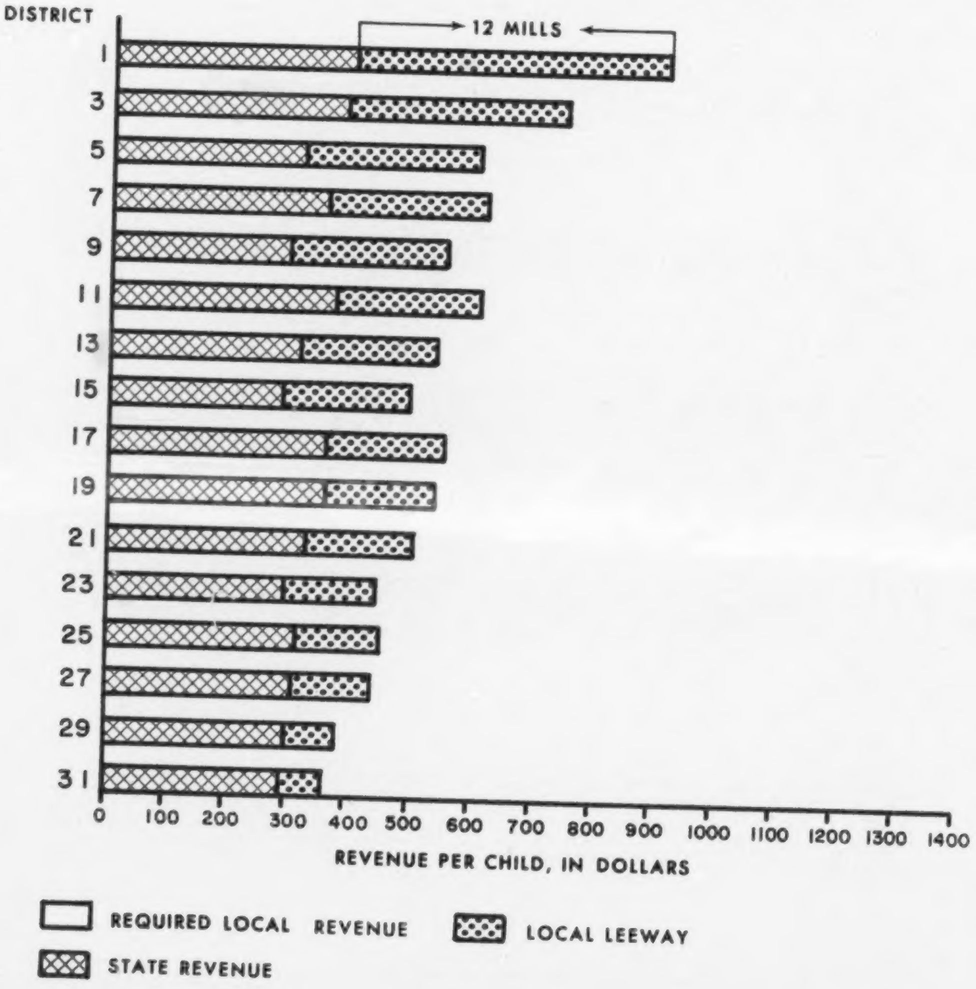
The National Educational Finance Project has developed a computerized model which can incorporate all of these variations. The details of this model are too extensive to be included in this volume but are available in a technical monograph published by the Project.

TABLE 10-5—MODEL I-A

FLAT GRANT OF $500 PER PUPIL IN ADM NO ALLOCATION FOR TRANSPORTATION LOCAL TAX RATE OF 12 MILLS

| *District* | *State Approp of $500 Per Pupil *ADM In Thousands of Dollars* | *Local Rev Yield of 12 Mill Levy on EAV In Thousands of Dollars* | *Total Revenue In Thousands of Dollars* | *Total Rev Per Pupil In ADM In Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation From 100% Equalized* |
|---|---|---|---|---|---|---|
| 1 | 7,115 | 9,256 | 16,371 | 1,150 | 161.27 | 61.27 |
| 2 | 5,241 | 6,725 | 11,965 | 1,142 | 155.36 | 55.36 |
| 3 | 16,266 | 15,439 | 31,705 | 975 | 132.15 | 32.15 |
| 4 | 61,659 | 55,492 | 117,151 | 950 | 126.79 | 26.79 |
| 5 | 2,599 | 2,173 | 4,771 | 918 | 106.20 | 6.20 |
| 6 | 5,090 | 3,520 | 8,609 | 846 | 112.07 | 12.07 |
| 7 | 7,610 | 5,157 | 12,767 | 839 | 108.58 | 8.58 |
| 8 | 906 | 624 | 1,529 | 844 | 107.52 | 7.52 |
| 9 | 3,529 | 2,721 | 6,250 | 886 | 97.11 | –2.89 |
| 10 | 68,664 | 43,042 | 111,707 | 813 | 109.29 | 9.29 |
| 11 | 1,616 | 938 | 2,554 | 790 | 107.00 | 7.00 |
| 12 | 2,365 | 1,420 | 3,785 | 800 | 105.61 | 5.61 |
| 13 | 2,033 | 1,290 | 3,323 | 817 | 93.98 | –6.02 |
| 14 | 82,662 | 44,581 | 127,243 | 770 | 105.67 | 5.67 |
| 15 | 2,381 | 1,464 | 3,845 | 808 | 88.00 | –12.00 |
| 16 | 8,325 | 4,184 | 12,508 | 751 | 95.01 | – 4.99 |
| 17 | 36,972 | 18,156 | 55,128 | 746 | 97.74 | – 2.26 |
| 18 | 10,620 | 5,498 | 16,118 | 759 | 92.47 | – 7.53 |
| 19 | 15,009 | 6,665 | 21,674 | 722 | 94.57 | – 5.43 |
| 20 | 7,431 | 3,505 | 10,935 | 736 | 88.75 | –11.25 |
| 21 | 12,506 | 5,947 | 18,453 | 738 | 89.15 | –10.85 |
| 22 | 9,484 | 4,102 | 13,586 | 716 | 85.31 | –14.69 |
| 23 | 3,062 | 1,324 | 4,386 | 716 | 79,45 | –20.55 |
| 24 | 3,623 | 1,558 | 5,180 | 715 | 75.71 | –24.29 |
| 25 | 104,007 | 42,964 | 146,971 | 707 | 80.06 | –19.94 |
| 26 | 6,959 | 2,518 | 9,477 | 681 | 84.58 | –15.42 |
| 27 | 6,789 | 2,406 | 9,195 | 677 | 79.21 | –20.79 |
| 28 | 1,252 | 387 | 1,638 | 655 | 85.81 | –14.19 |
| 29 | 5,642 | 1,695 | 7,337 | 650 | 73.43 | –26.58 |
| 30 | 2,766 | 721 | 3,487 | 630 | 72.07 | –27.93 |
| 31 | 3,032 | 795 | 3,827 | 631 | 70.00 | –30.00 |
| 32 | 2,493 | 607 | 3,100 | 622 | 73.63 | –26.37 |
| Totals | 509,701 | 296,876 | 806,573 | —— | —— | —— |
| Average Weighted Deviation | | | | | | 15.42 |

FIGURE 10-1. MODEL I-A REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

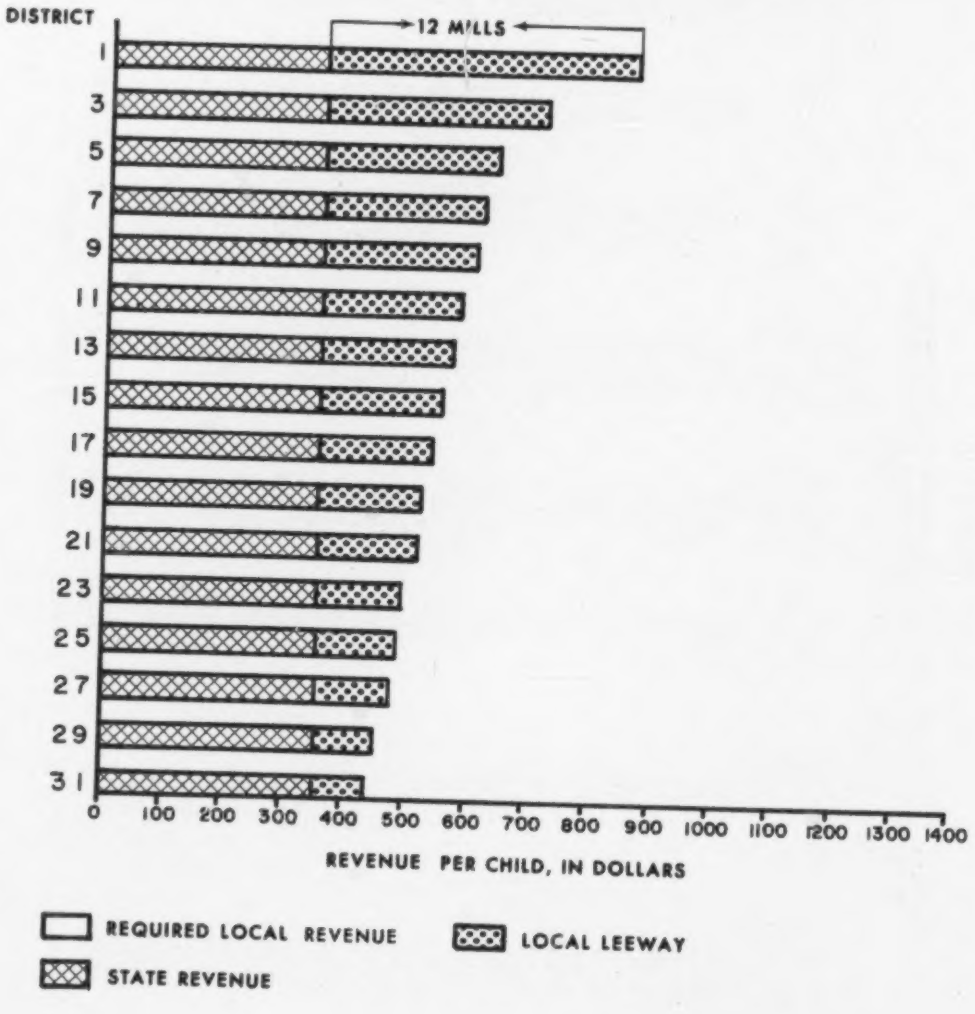


## TABLE 10-6—MODEL I-B

### FLAT GRANT OF $352.1696 PER PUPIL IN WADM ALLOCATION FORTRANSPORTATION LOCAL TAX RATE OF 12 MILLS

| District | *Amount Alloc for trans in Dollars* | *State Appropriation $352. 1696 Amt Allocated Per WADM In Thousands of Dollars* | *Total State Alloc In Thousands of Dollars* | *Local Revenue Yield of 12 Mill Levy In Thousands of Dollars* | *Total Revenue In Thousands of Dollars* | *Total Revenue Per WADM In Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation from 100% Equalized* |
|---|---|---|---|---|---|---|---|---|
| 1 | 28,140 | 6,316 | 6,344 | 9,256 | 15,600 | 870 | 153.68 | 53.68 |
| 2 | 0 | 4,805 | 4,805 | 6,725 | 11,530 | 845 | 149.71 | 49.71 |
| 3 | 129,600 | 14,888 | 15,017 | 15,439 | 30,457 | 720 | 126.95 | 26.95 |
| 4 | 2,025,199 | 56,383 | 58,408 | 55,492 | 113,900 | 711 | 123.27 | 23.27 |
| 5 | 156,585 | 2,705 | 2,862 | 2,173 | 5,035 | 655 | 112.06 | 12.06 |
| 6 | 217,838 | 4,657 | 4,876 | 3,520 | 8,394 | 635 | 109.28 | 9.28 |
| 7 | 631,659 | 6,942 | 7,574 | 5,157 | 12,731 | 646 | 108.27 | 8.27 |
| 8 | 65,285 | 847 | 912 | 624 | 1,536 | 639 | 107.97 | 7.97 |
| 9 | 344,760 | 3,801 | 4,145 | 2,721 | 6.867 | 636 | 106.69 | 6.69 |
| 10 | 2,275,609 | 62,347 | 64,623 | 43,042 | 107,665 | 608 | 105.34 | 5.34 |
| 11 | 89,440 | 1,433 | 1,523 | 938 | 2,461 | 605 | 103.11 | 3.11 |
| 12 | 104,762 | 2,171 | 2,276 | 1,420 | 3,696 | 600 | 103.12 | 3.12 |
| 13 | 140,800 | 2,118 | 2,259 | 1,290 | 3,549 | 590 | 100.38 | .38 |
| 14 | 2,227,033 | 73,737 | 75,964 | 44,581 | 120,544 | 576 | 100.11 | .11 |
| 15 | 283,465 | 2,550 | 2,832 | 1,464 | 4,297 | 594 | 98.35 | – 1.66 |
| 16 | 632,443 | 7,819 | 8,451 | 4,184 | 12,635 | 569 | 95.98 | – 4.02 |
| 17 | 1,649,358 | 34,162 | 35,812 | 18,156 | 53,967 | 556 | 95.68 | – 4.32 |
| 18 | 418,744 | 10,614 | 11,033 | 5,498 | 16,531 | 548 | 94.84 | – 5.16 |
| 19 | 879,995 | 13,750 | 14,630 | 6,665 | 21,295 | 545 | 92.92 | – 7.08 |
| 20 | 522,555 | 7,361 | 7,884 | 3,505 | 11,388 | 545 | 92.43 | – 7.57 |
| 21 | 654,440 | 12,505 | 13,159 | 5,947 | 19,107 | 538 | 92.31 | – 7.69 |
| 22 | 394,525 | 9,690 | 10,085 | 4,102 | 14,187 | 516 | 89.08 | –10.92 |
| 23 | 342,355 | 3,230 | 3,573 | 1,324 | 4,897 | 534 | 88.70 | –11.30 |
| 24 | 287,980 | 4,089 | 4,377 | 1,558 | 5,935 | 511 | 86.74 | –13.26 |
| 25 | 230,496 | 114,395 | 114,625 | 42,964 | 157,589 | 485 | 85.84 | –14.16 |
| 26 | 456,729 | 6,706 | 7,163 | 2,518 | 9,681 | 508 | 86.39 | –13.61 |
| 27 | 683,995 | 6,816 | 7,500 | 2,406 | 9,906 | 512 | 85.33 | –14.67 |
| 28 | 141,904 | 1,103 | 1,245 | 387 | 1,631 | 521 | 85.45 | –14.55 |
| 29 | 488,345 | 5,930 | 6,418 | 1,695 | 8,113 | 482 | 81.19 | –18.81 |
| 30 | 243,705 | 2,866 | 3,110 | 721 | 3,831 | 471 | 79.19 | –20.81 |
| 31 | 321,100 | 3,210 | 3,531 | 795 | 4,326 | 475 | 79.13 | –20.87 |
| 32 | 162,030 | 2,525 | 2,687 | 607 | 3,295 | 459 | 78.27 | –21.73 |
| Totals | 17,230,840 | 492,468 | 509,698 | 296,875 | 806,573 | —— | —— | —— |
| Average Weighted Deviation — — — — — — — — — — — — — — — — — — — — — — — | | | | | | | | 11.40 |

FIGURE 10-2. MODEL I-B REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

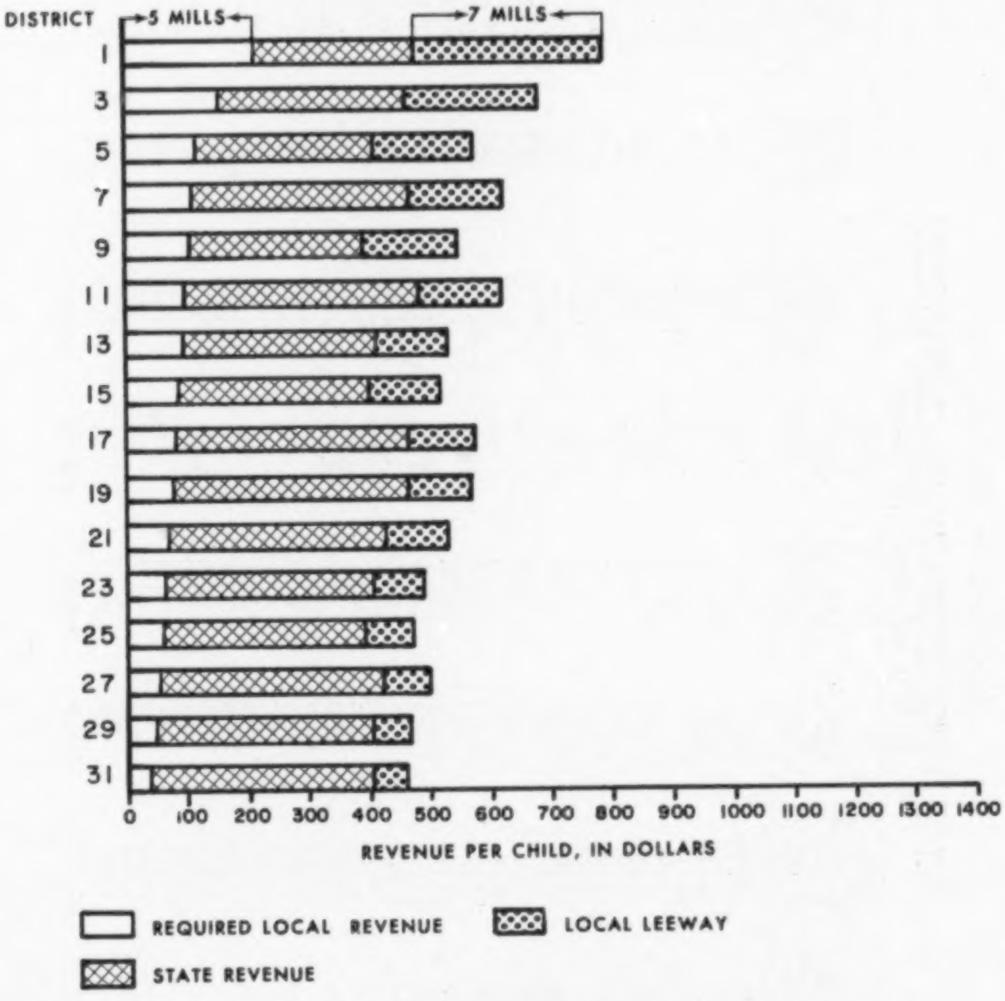


### TABLE 10-7—MODEL II-A

MINIMUM FOUNDATION PROGRAM ALLOCATION FOR TRANSPORTATION
ALLOCATION OF $604.4404 PER ADM 5 MILL LEVY CHARGEBACK
7 MILL LEVY LOCAL TAX LEEWAY

| *District* | *Amt Alloc For Trans in Dollars* | *$604.4404 Amt Alloc Per ADM in Thousands of Dollars* | *State Appropriations Total Found Program in Thousands of Dollars* | *5 Mills Equal Val in Thousands of Dollars* | *Total State Appropriation in Thousands of Dollars* | *Additional Local Rev 7 Mills Equal Val in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per Pupil in ADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation from 100% Equalized* |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28,140 | 8,601 | 8,629 | 3,857 | 4,773 | 5,400 | 14,029 | 986 | 138.20 | 38.20 |
| 2 | 0 | 6,335 | 6,335 | 2,802 | 3,533 | 3,923 | 10,259 | 979 | 133.19 | 33.19 |
| 3 | 129,600 | 19,664 | 19,793 | 6,433 | 13,360 | 9,006 | 28,800 | 885 | 120.04 | 20.04 |
| 4 | 2,025,199 | 74,538 | 76,564 | 23,122 | 53,442 | 32,370 | 108,934 | 883 | 117.90 | 17.90 |
| 5 | 156,585 | 3,141 | 3,298 | 905 | 2,393 | 1,267 | 4,565 | 878 | 101.61 | 1.61 |
| 6 | 217,838 | 6,153 | 6,370 | 1,467 | 4,904 | 2,053 | 8,424 | 828 | 109.66 | 9.66 |
| 7 | 631,659 | 9,200 | 9,831 | 2,149 | 7,682 | 3,009 | 12,840 | 844 | 109.20 | 9.20 |
| 8 | 65,285 | 1,095 | 1,160 | 260 | 900 | 364 | 1,524 | 841 | 107.14 | 7.14 |
| 9 | 344,760 | 4,266 | 4,611 | 1,134 | 3,477 | 1,588 | 6,198 | 878 | 96.30 | – 3.70 |
| 10 | 2,275,609 | 83,007 | 85,283 | 17,934 | 67,349 | 25,108 | 110,391 | 804 | 108.01 | 8.01 |
| 11 | 89,440 | 1,953 | 2,042 | 391 | 1,651 | 547 | 2,590 | 802 | 108.50 | 8.50 |
| 12 | 104,762 | 2,859 | 2,964 | 592 | 2,371 | 829 | 3,792 | 802 | 105.81 | 5.81 |
| 13 | 140,800 | 2,457 | 2,598 | 538 | 2,060 | 753 | 3,350 | 824 | 94.77 | – 5.23 |
| 14 | 2,227,033 | 99,928 | 102,156 | 18,575 | 83,580 | 26,006 | 128,161 | 775 | 106.43 | 6.43 |
| 15 | 283,465 | 2,878 | 3,161 | 610 | 2,551 | 854 | 4.015 | 843 | 91.90 | – 8.10 |
| 16 | 632,443 | 10,063 | 10,698 | 1,743 | 8,953 | 2,441 | 13,136 | 789 | 99.78 | – .22 |
| 17 | 1,649,358 | 44,695 | 46,345 | 7,565 | 38,780 | 10,591 | 56,935 | 770 | 100.94 | .94 |
| 18 | 418,744 | 12,838 | 13,257 | 2,291 | 10,966 | 3,207 | 16,464 | 775 | 94.45 | – 5.55 |
| 19 | 879,995 | 18,143 | 19,023 | 2,777 | 16,246 | 3,888 | 22,912 | 763 | 99.97 | – .03 |
| 20 | 522,555 | 8,983 | 9,505 | 1,460 | 8,045 | 2,044 | 11,550 | 777 | 93.74 | – 6.26 |
| 21 | 654,440 | 15,118 | 15,772 | 2,478 | 13,294 | 3,469 | 19,241 | 769 | 92.96 | – 7.04 |
| 22 | 394,525 | 11,465 | 11,860 | 1,709 | 10,150 | 2,393 | 14,253 | 751 | 89.49 | –10.51 |
| 23 | 342,355 | 3,702 | 4,044 | 552 | 3,492 | 772 | 4,816 | 786 | 87,24 | –12.76 |
| 24 | 287,980 | 4,379 | 4,667 | 649 | 4,018 | 909 | 5,576 | 770 | 81.49 | –18.51 |
| 25 | 230,496 | 125,732 | 125,963 | 17,902 | 108,061 | 25,063 | 151,025 | 726 | 82.26 | –17.74 |
| 26 | 456,729 | 8,413 | 8,869 | 1,049 | 7,820 | 1,469 | 10,338 | 743 | 92.26 | – 7.74 |
| 27 | 683,995 | 8,206 | 8,890 | 1,003 | 7,888 | 1,404 | 10,294 | 758 | 88.68 | –11.32 |
| 28 | 141,904 | 1,513 | 1,655 | 161 | 1,494 | 226 | 1,881 | 751 | 98.49 | – 1.51 |
| 29 | 488,345 | 6,821 | 7,309 | 706 | 6,603 | 989 | 8,298 | 735 | 83.03 | –16.97 |
| 30 | 243,705 | 3,343 | 3,589 | 301 | 3,286 | 421 | 4,008 | 725 | 82.84 | –17.16 |
| 31 | 321,100 | 3,665 | 3,986 | 331 | 3,655 | 464 | 4,450 | 734 | 81.40 | –18.60 |
| 32 | 162,030 | 3,013 | 3,175 | 253 | 2,922 | 354 | 3,529 | 708 | 83.84 | –16.16 |
| **Totals** | 17,230,840 | 616,166 | 633,396 | 123,698 | 509,698 | 173,178 | 806,573 | —— | —— | —— |
| **Average Weighted Deviation** — — — | | | | | | | | | | 11.63 |

FIGURE 10-3. MODEL II-A REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

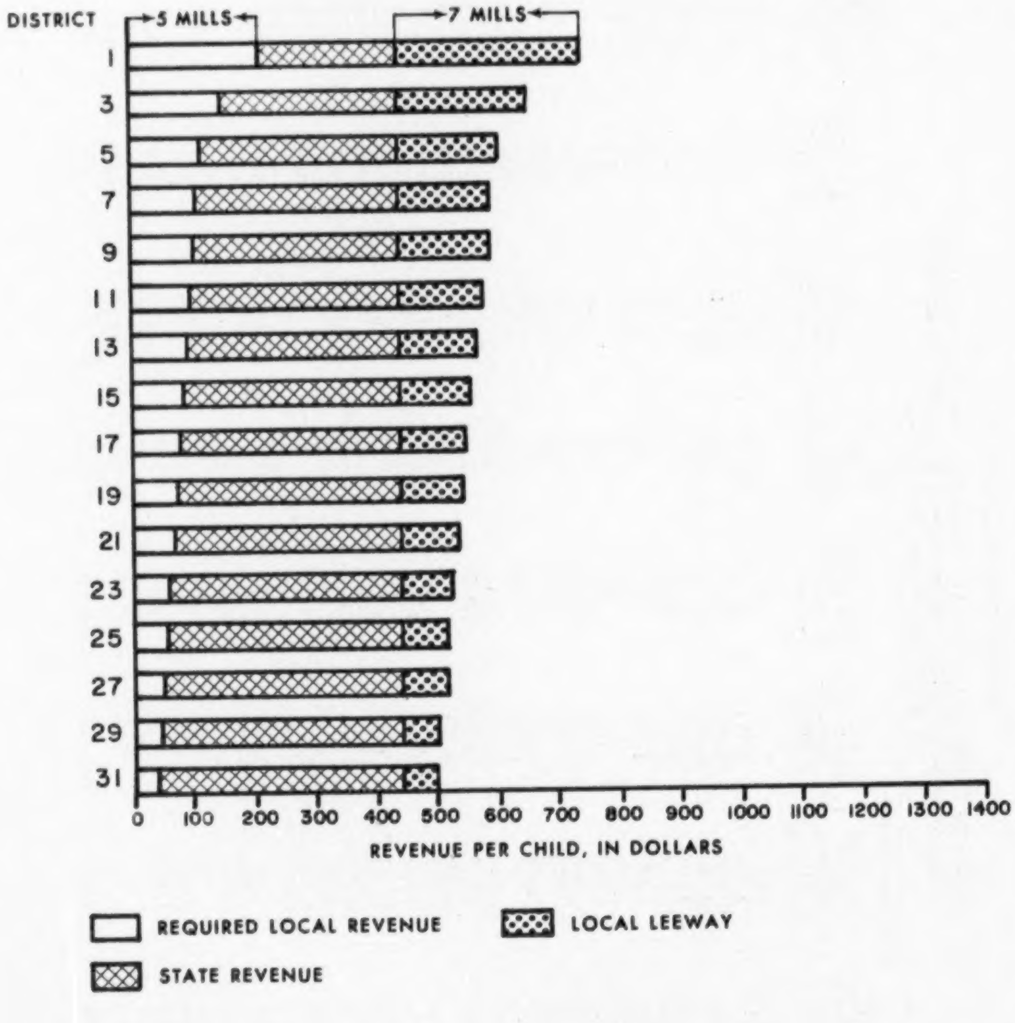


## TABLE 10-8—MODEL II-B

### MINIMUM FOUNDATION PROGRAM ALLOCATION FOR TRANSPORTATION
### ALLOCATION OF $440.6274 PER WADM 5 MILL LEVY CHARGEBACK
### 7 MILL LEVY LOCAL TAX LEEWAY

| *District* | *Amt Alloc for Trans in Dollars* | *$440.6274 Amt Alloc Per WADM in Thousands of Dollars* | *State Appropriations Total Found Program in Thousands of Dollars* | *5 Mills × Equal Val in Thousands of Dollars* | *Total State Appropriation in Thousands of Dollars* | *Local Rev Revenue 7 Mills × Equal Val in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per Pupil in WADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation from 100% Equalization* |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28,140 | 7,902 | 7,930 | 3,857 | 4,074 | 5,400 | 13,330 | 743 | 131.31 | 31.31 |
| 2 | 0 | 6,012 | 6,012 | 2,802 | 3,210 | 3,923 | 9,935 | 728 | 129.00 | 29.99 |
| 3 | 129,600 | 18,627 | 18,757 | 6,433 | 12,324 | 9,006 | 27,763 | 657 | 115.72 | 15.72 |
| 4 | 2,025,199 | 70,545 | 72,570 | 23,122 | 49,449 | 32,370 | 104,940 | 655 | 113.58 | 13.58 |
| 5 | 156,585 | 3,385 | 3,541 | 905 | 2,636 | 1,267 | 4,809 | 626 | 107.04 | 7.04 |
| 6 | 217,838 | 5,826 | 6,044 | 1,467 | 4,578 | 2,053 | 8,097 | 612 | 105.41 | 5.41 |
| 7 | 631,659 | 8,686 | 9,317 | 2,149 | 7,168 | 3,009 | 12,326 | 625 | 104.83 | 4.83 |
| 8 | 65,285 | 1,059 | 1,125 | 260 | 865 | 364 | 1,488 | 619 | 104.65 | 4.65 |
| 9 | 344,760 | 4,755 | 5,100 | 1,134 | 3,966 | 1,588 | 6,688 | 620 | 103.90 | 3.90 |
| 10 | 2,275,609 | 78,008 | 80,283 | 17,934 | 62,349 | 25,108 | 105,391 | 595 | 103.11 | 3.11 |
| 11 | 89,440 | 1,793 | 1,883 | 391 | 1,492 | 547 | 2,430 | 597 | 101.82 | 1.82 |
| 12 | 104,762 | 2,716 | 2,821 | 592 | 2,229 | 829 | 3,649 | 592 | 101.82 | 1.82 |
| 13 | 140,800 | 2,650 | 2,791 | 538 | 2,253 | 753 | 3,543 | 589 | 100.22 | .22 |
| 14 | 2,227,033 | 92,258 | 94,485 | 18,575 | 75,909 | 26,006 | 120,490 | 575 | 100.06 | .06 |
| 15 | 283,465 | 3,189 | 3,473 | 610 | 2,863 | 854 | 4,327 | 598 | 99.03 | – .97 |
| 16 | 632,443 | 9,783 | 10,415 | 1,743 | 8,672 | 2,441 | 12,856 | 579 | 97.65 | – 2.35 |
| 17 | 1,649,358 | 42,743 | 44,392 | 7,565 | 36,828 | 10,591 | 54,983 | 567 | 97.48 | – 2.52 |
| 18 | 418,744 | 13,280 | 13,699 | 2,291 | 11,408 | 3,207 | 16,906 | 561 | 96.99 | – 3.01 |
| 19 | 879,995 | 17,204 | 18,084 | 2,777 | 15,307 | 3,888 | 21,972 | 563 | 95.87 | – 4.13 |
| 20 | 522,555 | 9,210 | 9,733 | 1,460 | 8,272 | 2,044 | 11,777 | 563 | 95.58 | – 4.42 |
| 21 | 654,440 | 15,646 | 16,300 | 2,478 | 13,822 | 3,469 | 19,770 | 557 | 95.52 | – 4.48 |
| 22 | 394,525 | 12,124 | 12,519 | 1,709 | 10,810 | 2,393 | 14,912 | 542 | 93.63 | – 6.37 |
| 23 | 342,355 | 4,042 | 4,384 | 552 | 3,833 | 772 | 5,156 | 562 | 93.41 | – 6.59 |
| 24 | 287,980 | 5,117 | 5,405 | 649 | 4,755 | 909 | 6,313 | 544 | 92.27 | – 7.73 |
| 25 | 230,496 | 143,128 | 143,359 | 17,902 | 125,457 | 25,063 | 168,421 | 518 | 91.74 | – 8.26 |
| 26 | 456,729 | 8,390 | 8,847 | 1,049 | 7,798 | 1,469 | 10,316 | 542 | 92.06 | – 7.94 |
| 27 | 683,995 | 8,527 | 9,211 | 1,003 | 8,209 | 1,404 | 10,615 | 548 | 91.44 | – 8.56 |
| 28 | 141,904 | 1,380 | 1,521 | 161 | 1,360 | 226 | 1,747 | 558 | 91.51 | – 8.49 |
| 29 | 488,345 | 7,419 | 7,908 | 706 | 7,201 | 989 | 8,896 | 528 | 89.03 | –10.97 |
| 30 | 243,705 | 3,586 | 3,830 | 301 | 3,529 | 421 | 4,251 | 522 | 87.86 | –12.14 |
| 31 | 321,100 | 4,017 | 4,338 | 331 | 4,007 | 464 | 4,801 | 527 | 87.83 | –12.17 |
| 32 | 162,030 | 3,160 | 3,322 | 253 | 3,069 | 354 | 3,676 | 513 | 87.32 | –12.68 |
| Totals | 17,230,840 | 616,166 | 633,396 | 123,698 | 509,697 | 173,178 | 806,573 | | | |
| Average Weighted Deviation | | | | | | | | | | 6.65 |

FIGURE 10-4. MODEL II-B REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

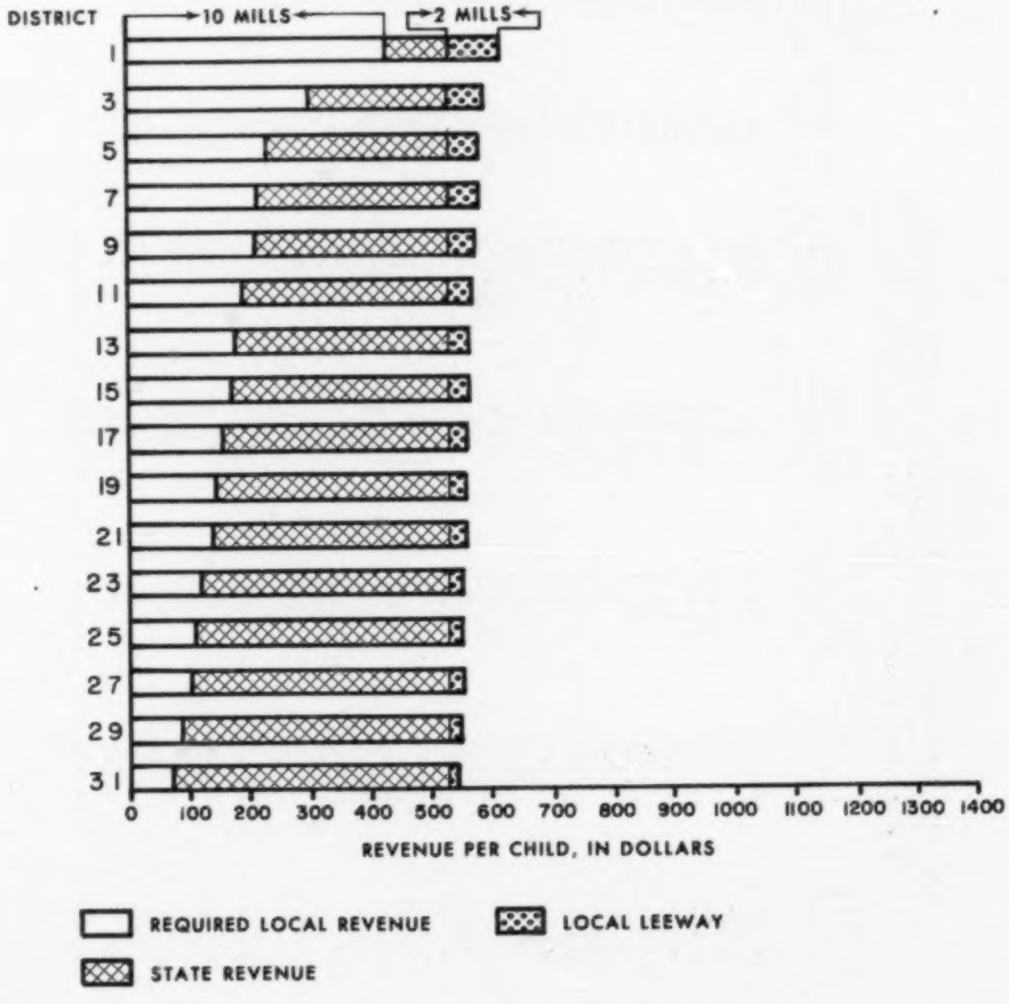


### TABLE 10-9—MODEL II-C

MINIMUM FOUNDATION PROGRAM ALLOCATION FOR TRANSPORTATION
ALLOCATION OF $529.0856 PER WADM 10 MILL LEVY CHARGEBACK
2 MILL LEVY LOCAL TAX LEEWAY

| | | *State Appropriations* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *District* | *Amt Alloc for Trans in Dollars* | *$529.0856 Amt Alloc Per WADM in Thousands of Dollars* | *Total Found Program in Thousands of Dollars* | *10 Mills × Equal Val in Thousands of Dollars* | *Total State Appropriation in Thousands of Dollars* | *Local Rev Revenue 2 Mills Equal Val in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per Pupil in WADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation from 100% Equalization* |
| 1 | 28,140 | 9,489 | 9,517 | 7,714 | 1,803 | 1,543 | 11,059 | 617 | 108.95 | 8.95 |
| 2 | 0 | 7,219 | 7,219 | 5,604 | 1,615 | 1,121 | 8,340 | 611 | 108.28 | 8.28 |
| 3 | 129,600 | 22,367 | 22,496 | 12,866 | 9,630 | 2,573 | 25,069 | 593 | 104.49 | 4.49 |
| 4 | 2,025,199 | 84,707 | 86,732 | 46,243 | 40,489 | 9,249 | 95,981 | 600 | 103.88 | 3.88 |
| 5 | 156,585 | 4,064 | 4,221 | 1,811 | 2,410 | 362 | 4,583 | 597 | 102.01 | 2.01 |
| 6 | 217,838 | 6,996 | 7,214 | 2,933 | 4,281 | 587 | 7,801 | 590 | 101.55 | 1.55 |
| 7 | 631,659 | 10,429 | 11,061 | 4,298 | 6,763 | 860 | 11,921 | 605 | 101.38 | 1.38 |
| 8 | 65,285 | 1,272 | 1,337 | 520 | 817 | 104 | 1,441 | 599 | 101.33 | 1.33 |
| 9 | 344,760 | 5,710 | 6,055 | 2,268 | 3,787 | 454 | 6,508 | 603 | 101.11 | 1.11 |
| 10 | 2,275,609 | 93,668 | 95,944 | 35,868 | 60,075 | 7,174 | 103,118 | 582 | 100.89 | .89 |
| 11 | 89,440 | 2,153 | 2,243 | 782 | 1,461 | 156 | 2,399 | 589 | 100.52 | .52 |
| 12 | 104,762 | 3,261 | 3,366 | 1,184 | 2,182 | 237 | 3,603 | 584 | 100.52 | .52 |
| 13 | 140,800 | 3,182 | 3,323 | 1,075 | 2,248 | 215 | 3,538 | 588 | 100.06 | .06 |
| 14 | 2,227,033 | 110,779 | 113,006 | 37,151 | 75,855 | 7,430 | 120,436 | 575 | 100.02 | .02 |
| 15 | 283,465 | 3,830 | 4,113 | 1,220 | 2,893 | 244 | 4,357 | 602 | 99.72 | − .28 |
| 16 | 632,443 | 11,747 | 12,379 | 3,486 | 8,893 | 697 | 13,076 | 589 | 99.33 | − .67 |
| 17 | 1,649,358 | 51,324 | 52,973 | 15,130 | 37,844 | 3,026 | 55,999 | 577 | 99.28 | − .72 |
| 18 | 418,744 | 15,946 | 16,365 | 4,582 | 11,783 | 916 | 17,281 | 573 | 99.14 | − .86 |
| 19 | 879,995 | 20,658 | 21,538 | 5,554 | 15,983 | 1,111 | 22,648 | 580 | 98.82 | −1.18 |
| 20 | 522,555 | 11,059 | 11,582 | 2,921 | 8,661 | 584 | 12,166 | 582 | 98.74 | −1.26 |
| 21 | 654,440 | 18,787 | 19,441 | 4,956 | 14,485 | 991 | 20,432 | 575 | 98.72 | −1.28 |
| 22 | 394,525 | 14,558 | 14,953 | 3,419 | 11,534 | 684 | 15,637 | 568 | 98.18 | −1.82 |
| 23 | 342,355 | 4,853 | 5,196 | 1,103 | 4,093 | 221 | 5,416 | 590 | 98.12 | −1.88 |
| 24 | 287,980 | 6,144 | 6,432 | 1,298 | 5,133 | 260 | 6,691 | 576 | 97.79 | −2.21 |
| 25 | 230,496 | 171,862 | 172,092 | 35,804 | 136,289 | 7,161 | 179,253 | 552 | 97.64 | −2.36 |
| 26 | 456,729 | 10,075 | 10,532 | 2,098 | 8,433 | 420 | 10,951 | 575 | 97.73 | −2.27 |
| 27 | 683,995 | 10,239 | 10,923 | 2,005 | 8,918 | 401 | 11,324 | 585 | 97.56 | −2.44 |
| 28 | 141,904 | 1,657 | 1,798 | 322 | 1,476 | 64 | 1,863 | 595 | 97.58 | −2.42 |
| 29 | 488,345 | 8,909 | 9,397 | 1,412 | 7,985 | 282 | 9,680 | 575 | 96.86 | −3.14 |
| 30 | 243,705 | 4,306 | 4,550 | 601 | 3,949 | 120 | 4,670 | 574 | 96.53 | −3.47 |
| 31 | 321,100 | 4,823 | 5,144 | 662 | 4,482 | 132 | 5,277 | 579 | 96.52 | −3.48 |
| 32 | 162,030 | 3,794 | 3,956 | 506 | 3,450 | 101 | 4,057 | 566 | 96.38 | −3.62 |
| Totals | 17,230,840 | 739,864 | 757,095 | 247,397 | 509,698 | 49,479 | 806,573 | | | |
| Average | Weighted | Deviation — — — | | | | | | | | 1.90 |

FIGURE 10-5. MODEL II-C REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

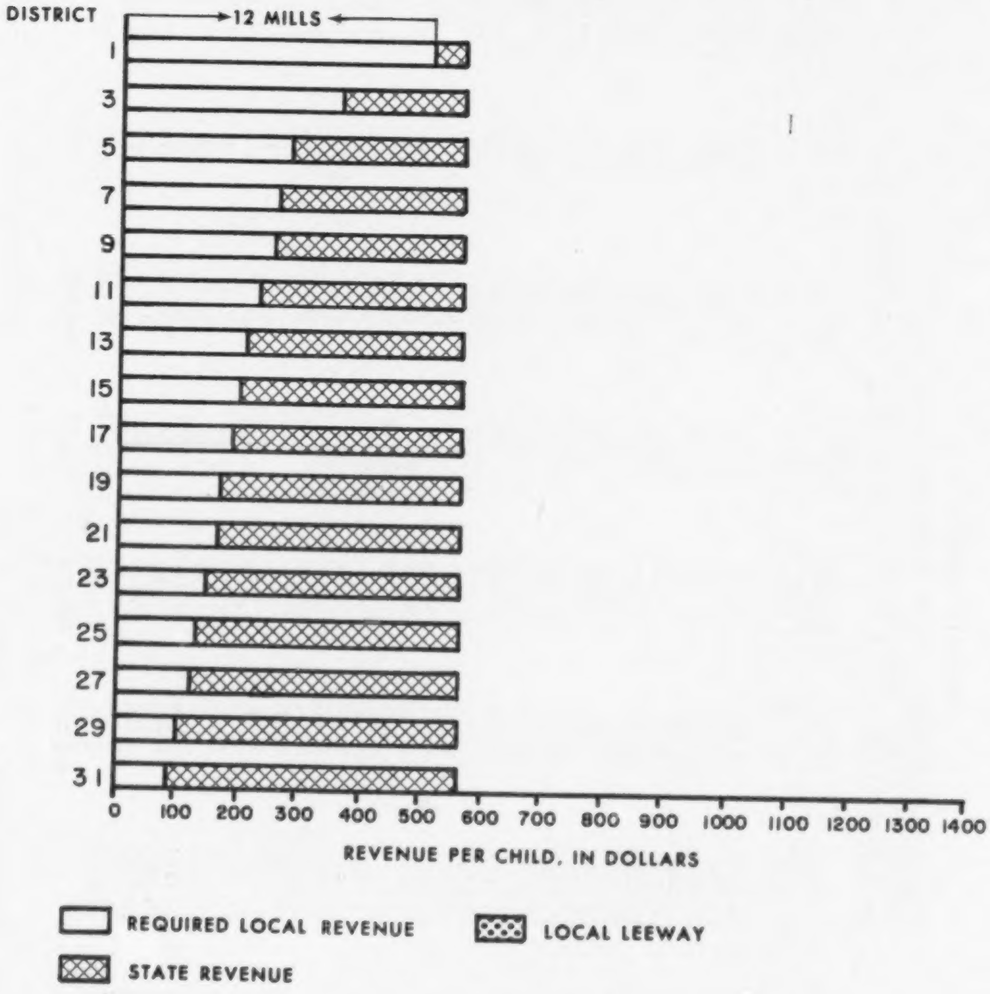


### TABLE 10-10—MODEL II-D

COMPLETE EQUALIZATION MODEL MINIMUM FOUNDATION PROGRAM
ALLOCATION FOR TRANSPORTATION ALLOCATION OF $564.4685 PER WADM
12 MILL LEVY CHARGEBACK 0 MILL LEVY LOCAL TAX LEEWAY

| *District* | *Amt Alloc For Trans in Dollars* | *$564.4685 Amt Alloc Per WADM in Thousands of Dollars* | *Total Found Program in Thousands of Dollars* | *State Appropriations 12 Mill × Equal Val in Thousands of Dollars* | *Total State Appropriation in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per WADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation from 100% Equalized* |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 28,140 | 10,123 | 10,151 | 9,256 | 895 | 10,151 | 566 | 100 | 0 |
| 2 | 0 | 7,702 | 7,702 | 6,725 | 977 | 7,702 | 564 | 100 | 0 |
| 3 | 129,600 | 23,862 | 23,992 | 15,439 | 8,552 | 23,992 | 568 | 100 | 0 |
| 4 | 2,025,199 | 90,372 | 92,397 | 55,492 | 36,905 | 92,397 | 577 | 100 | 0 |
| 5 | 156,585 | 4,336 | 4,493 | 2,173 | 2,320 | 4,493 | 585 | 100 | 0 |
| 6 | 217,838 | 7,464 | 7,682 | 3,520 | 4,162 | 7,682 | 581 | 100 | 0 |
| 7 | 631,659 | 11,127 | 11,758 | 5,157 | 6,601 | 11,758 | 597 | 100 | 0 |
| 8 | 65,285 | 1,357 | 1,422 | 624 | 799 | 1,422 | 592 | 100 | 0 |
| 9 | 344,760 | 6,092 | 6,437 | 2,721 | 3,715 | 6,437 | 596 | 100 | 0 |
| 10 | 2,275,609 | 99,932 | 102,208 | 43,042 | 59,166 | 102,208 | 577 | 100 | 0 |
| 11 | 89,440 | 2,297 | 2,387 | 938 | 1,448 | 2,387 | 586 | 100 | 0 |
| 12 | 104,762 | 3,479 | 3,584 | 1,420 | 2,164 | 3,584 | 581 | 100 | 0 |
| 13 | 140,800 | 3,395 | 3,536 | 1,290 | 2,245 | 3,536 | 588 | 100 | 0 |
| 14 | 2,227,033 | 118,187 | 120,414 | 44,581 | 75,833 | 120,414 | 575 | 100 | 0 |
| 15 | 283,465 | 4,086 | 4,369 | 1,464 | 2,905 | 4,369 | 604 | 100 | 0 |
| 16 | 632,443 | 12,532 | 13,165 | 4,184 | 8,981 | 13,165 | 593 | 100 | 0 |
| 17 | 1,649,358 | 54,756 | 56,406 | 18,156 | 38,250 | 56,406 | 581 | 100 | 0 |
| 18 | 418,744 | 17,013 | 17,431 | 5,498 | 11,933 | 17,431 | 578 | 100 | 0 |
| 19 | 879,995 | 22,039 | 22,919 | 6,665 | 16,254 | 22,919 | 587 | 100 | 0 |
| 20 | 522,555 | 11,799 | 12,321 | 3,505 | 8,816 | 12,321 | 589 | 100 | 0 |
| 21 | 654,440 | 20,043 | 20,698 | 5,947 | 14,750 | 20,698 | 583 | 100 | 0 |
| 22 | 394,525 | 15,532 | 15,926 | 4,102 | 11,824 | 15,926 | 579 | 100 | 0 |
| 23 | 342,355 | 5,178 | 5,520 | 1,324 | 4,197 | 5,520 | 602 | 100 | 0 |
| 24 | 287,980 | 6,555 | 6,843 | 1,558 | 5,285 | 6,843 | 589 | 100 | 0 |
| 25 | 230,496 | 183,355 | 183,586 | 42,964 | 140,621 | 183,586 | 565 | 100 | 0 |
| 26 | 456,729 | 10,749 | 11,205 | 2,518 | 8,687 | 11,205 | 588 | 100 | 0 |
| 27 | 683,995 | 10,924 | 11,608 | 2,406 | 9,202 | 11,608 | 600 | 100 | 0 |
| 28 | 141,904 | 1,767 | 1,909 | 387 | 1,522 | 1,909 | 610 | 100 | 0 |
| 29 | 488,345 | 9,505 | 9,993 | 1,695 | 8,298 | 9,993 | 593 | 100 | 0 |
| 30 | 243,705 | 4,594 | 4,838 | 721 | 4,117 | 4,838 | 594 | 100 | 0 |
| 31 | 321,100 | 5,146 | 5,467 | 795 | 4,672 | 5,467 | 600 | 100 | 0 |
| 32 | 162,030 | 4,048 | 4,210 | 607 | 3,602 | 4,210 | 587 | 100 | 0 |
| Totals | 17,230,840 | 789,343 | 806,573 | 296,876 | 509,698 | 806,573 | — | — | — |
| Average Weighted Deviation | — | — | — | — | — | — | — | — | 0 |

FIGURE 10-6. MODEL II-D REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

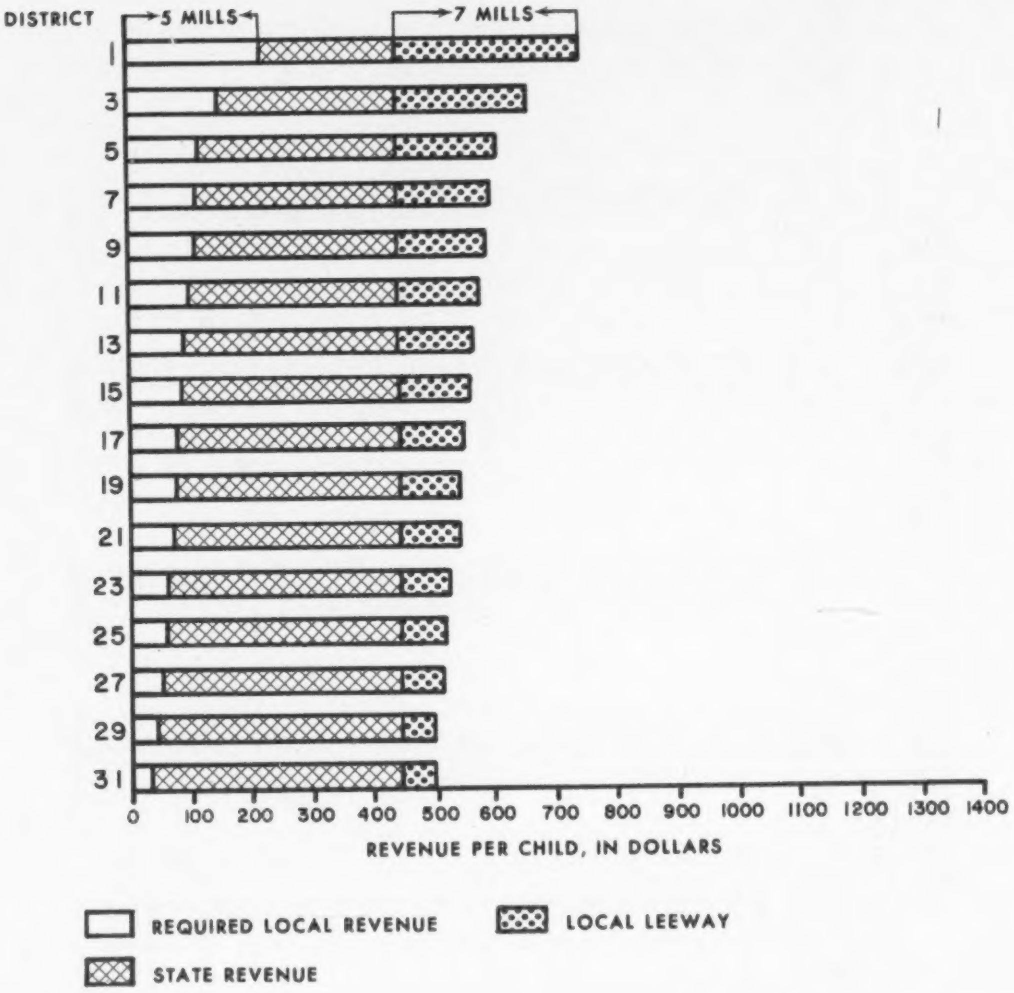


### TABLE 10-11—MODEL III

PERCENTAGE EQUALIZING GRANT—STATE REV = A × [1 − (D/S × E)]
PERCENTAGE BASED UPON LOCAL CONTRIBUTION ON 5 MILL OF EQUAL
VAL OF PROPERTY ALLOCATION FOR TRANSPORTATION WEIGHTED PUPILS

| *District* | *Amt Alloc For Trans in Dollars* | *440.6274 Amt Alloc Per WADM in Thousands of Dollars* | *% of Program Costs Contrib By State* | *State Contribution in Thousands of Dollars* | *Total State Appropriation in Thousands of Dollars* | *Local Rev 7 Mills × Equal Val in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per Pupil in WADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation from 100% Equalized* |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28,140 | 7,902 | 51.1931 | 4,045 | 4,074 | 5,400 | 13,330 | 743 | 131.31 | 31.31 |
| 2 | 0 | 6,012 | 53.3914 | 3,210 | 3,210 | 3,923 | 9,935 | 728 | 129.00 | 29.00 |
| 3 | 129,600 | 18,627 | 65.4635 | 12,194 | 12,324 | 9,006 | 27,763 | 657 | 115.72 | 15.72 |
| 4 | 2,025,199 | 70,545 | 67.2242 | 47,423 | 49,448 | 32,370 | 104,940 | 655 | 113.58 | 13.58 |
| 5 | 156,585 | 3,385 | 73.2532 | 2,480 | 2,636 | 1,267 | 4,809 | 626 | 107.04 | 7.04 |
| 6 | 217,838 | 5,826 | 74.8290 | 4,360 | 4,578 | 2,053 | 8,097 | 612 | 105.41 | 5.41 |
| 7 | 631,659 | 8,686 | 75.2585 | 6,537 | 7,168 | 3,009 | 12,326 | 625 | 104.83 | 4.83 |
| 8 | 65,285 | 1,059 | 75.4652 | 799 | 865 | 364 | 1,488 | 619 | 104.65 | 4.65 |
| 9 | 344,760 | 4,755 | 76.1537 | 3,621 | 3,966 | 1,588 | 6,688 | 620 | 103.90 | 3.90 |
| 10 | 2,275,609 | 78,008 | 77.0096 | 60,074 | 62,349 | 25,108 | 105,391 | 593 | 103.11 | 3.11 |
| 11 | 89,440 | 1,793 | 78.1981 | 1,402 | 1,492 | 547 | 2,430 | 597 | 101.82 | 1.82 |
| 12 | 104,762 | 2,716 | 78.2107 | 2,124 | 2,229 | 829 | 3,649 | 592 | 101.82 | 1.82 |
| 13 | 140,800 | 2,650 | 79.7132 | 2,112 | 2,253 | 753 | 3,543 | 589 | 100.22 | 0.22 |
| 14 | 2,227,033 | 92,258 | 79.8657 | 73,682 | 75,909 | 26,006 | 120,490 | 575 | 100.06 | 0.06 |
| 15 | 283,465 | 3,189 | 80.8693 | 2,579 | 2,863 | 854 | 4,327 | 598 | 99.03 | − 0.96 |
| 16 | 632,443 | 9,783 | 82.1808 | 8,040 | 8,672 | 2,441 | 12,856 | 579 | 97.65 | − 2.35 |
| 17 | 1,649,358 | 42,743 | 82.3016 | 35,178 | 36,828 | 10,591 | 54,983 | 567 | 97.47 | − 2.52 |
| 18 | 418,744 | 13,280 | 82.7485 | 10,989 | 11,408 | 3,207 | 16,906 | 561 | 96.98 | − 3.01 |
| 19 | 879,995 | 17,204 | 83.8570 | 14,427 | 15,307 | 3,888 | 21,972 | 563 | 95.86 | − 4.13 |
| 20 | 522,555 | 9,210 | 84.1447 | 7,750 | 8,272 | 2,044 | 11,777 | 563 | 95.58 | − 4.42 |
| 21 | 654,440 | 15,646 | 84.1615 | 13,168 | 13,822 | 3,469 | 19,770 | 557 | 95.51 | − 4.48 |
| 22 | 394,525 | 12,124 | 85.9013 | 10,415 | 10,809 | 2,393 | 14,912 | 542 | 93.63 | − 6.37 |
| 23 | 342,355 | 4,042 | 86.3543 | 3,490 | 3,833 | 772 | 5,156 | 562 | 93.41 | − 6.59 |
| 24 | 287,980 | 5,117 | 87,3127 | 4,467 | 4,755 | 909 | 6,313 | 544 | 92.27 | − 7.73 |
| 25 | 230,496 | 143,128 | 87.4924 | 125,226 | 125,457 | 25,063 | 168,421 | 518 | 91.74 | − 8.26 |
| 26 | 456,729 | 8,390 | 87.4954 | 7,341 | 7,798 | 1,469 | 10,316 | 542 | 92.06 | − 7.94 |
| 27 | 683,995 | 8,527 | 88.2430 | 7,525 | 8,209 | 1,404 | 10,615 | 548 | 91.44 | − 8.56 |
| 28 | 141,904 | 1,380 | 88.3144 | 1,218 | 1,360 | 226 | 1,747 | 558 | 91.51 | − 8.49 |
| 29 | 488,345 | 7,419 | 90.4818 | 6,713 | 7,201 | 989 | 8,896 | 528 | 89.03 | −10.97 |
| 30 | 243,705 | 3,586 | 91.6201 | 3,286 | 3,529 | 421 | 4,251 | 522 | 87.86 | −12.14 |
| 31 | 321,100 | 4,017 | 91.7571 | 3,686 | 4,007 | 464 | 4,801 | 527 | 87.83 | −12.17 |
| 32 | 162,030 | 3,160 | 91.9905 | 2,907 | 3,069 | 354 | 3,676 | 513 | 87.32 | −12.68 |
| Totals | 17,230,840 | 616,166 |  | 492,467 | 509,697 | 173,178 | 806,573 | —— | —— | —— |
| Average Weighted Deviation |  |  |  |  |  |  |  |  |  | 6.65 |

FIGURE 10-7. MODEL III REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

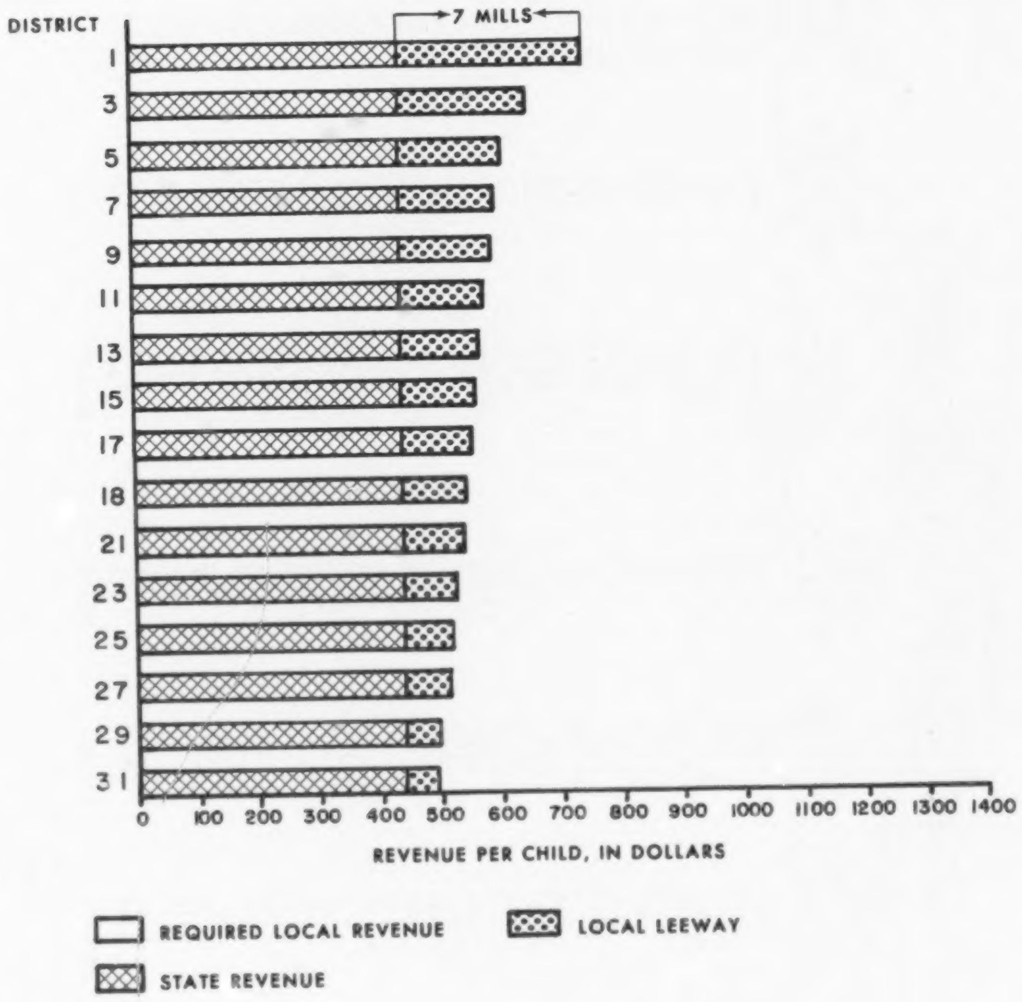


## TABLE 10-12—MODEL IV-A

### FLAT GRANT OF $440.6274 PER PUPIL IN WADM ALLOCATION FOR TRANSPORTATION EQUIVALENT OF 5 MILLS ON EAV PROVIDED TO STATE FOR DISTRIBUTION. LOCAL TAX RATE OF 7 MILLS

| | | *State Appropriation* | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *District* | *Amount Alloc For Trans in Dollars* | *$440.6274 Amt Allocated Per WADM in Thousands of Dollars* | *Total State Alloc in Thousands of Dollars* | *Local Revenue Yield of 7 Mill Levy in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per WADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation From 100% Equalized* |
| 1 | 28,140 | 7,902 | 7,930 | 5,400 | 13,330 | 743 | 131.31 | 31.31 |
| 2 | 0 | 6,012 | 6,012 | 3,923 | 9,935 | 728 | 129.00 | 29.00 |
| 3 | 129,600 | 18,627 | 18,757 | 9,006 | 27,763 | 657 | 115.72 | 15.72 |
| 4 | 2,025,199 | 70,545 | 72,570 | 32,370 | 104,940 | 655 | 113.58 | 13.58 |
| 5 | 156,585 | 3,385 | 3,541 | 1,267 | 4,809 | 626 | 107.04 | 7.04 |
| 6 | 217,838 | 5,826 | 6,044 | 2,053 | 8,097 | 612 | 105.41 | 5.41 |
| 7 | 631,659 | 8,686 | 9,317 | 3,009 | 12,326 | 625 | 104.83 | 4.83 |
| 8 | 65,285 | 1,059 | 1,125 | 364 | 1,488 | 619 | 104.65 | 4.65 |
| 9 | 344,760 | 4,755 | 5,100 | 1,588 | 6,688 | 620 | 103.90 | 3.90 |
| 10 | 2,275,609 | 78,008 | 80,283 | 25,108 | 105,391 | 595 | 103.11 | 3.11 |
| 11 | 89,440 | 1,793 | 1,883 | 547 | 2,430 | 597 | 101.82 | 1.82 |
| 12 | 104,762 | 2,716 | 2,821 | 829 | 3,649 | 592 | 101.82 | 1.82 |
| 13 | 140,800 | 2,650 | 2,791 | 753 | 3,543 | 589 | 100.22 | .22 |
| 14 | 2,227,033 | 92,258 | 94,485 | 26,005 | 120,490 | 575 | 100.06 | .06 |
| 15 | 283,465 | 3,189 | 3,473 | 854 | 4,327 | 598 | 99.03 | – .97 |
| 16 | 632,443 | 9,783 | 10,415 | 2,440 | 12,856 | 579 | 97.65 | –2.35 |
| 17 | 1,649,358 | 42,743 | 44,392 | 10,591 | 54,983 | 567 | 97.48 | –2.52 |
| 18 | 418,744 | 13,280 | 13,699 | 3,207 | 16,906 | 561 | 96.99 | –3.01 |
| 19 | 879,995 | 17,204 | 18,084 | 3,888 | 21,972 | 563 | 95.87 | –4.13 |
| 20 | 522,555 | 9,210 | 9,733 | 2,044 | 11,777 | 563 | 95.58 | –4.41 |
| 21 | 654,440 | 15,646 | 16,300 | 3,469 | 19,770 | 557 | 95.52 | –4.48 |
| 22 | 394,525 | 12,124 | 12,519 | 2,393 | 14,912 | 542 | 93.63 | –6.37 |
| 23 | 342,355 | 4,042 | 4,384 | 772 | 5,156 | 562 | 93.41 | –6.59 |
| 24 | 287,980 | 5,117 | 5,405 | 909 | 6,313 | 544 | 92.27 | –7.73 |
| 25 | 230,496 | 143,128 | 143,359 | 25,063 | 168,421 | 518 | 91.74 | –8.26 |
| 26 | 456,729 | 8,390 | 8,847 | 1,469 | 10,316 | 542 | 92.06 | –7.94 |
| 27 | 683,995 | 8,527 | 9,211 | 1,404 | 10,615 | 548 | 91.44 | –8.56 |
| 28 | 141,904 | 1,380 | 1,522 | 226 | 1,747 | 558 | 91.51 | –8.49 |
| 29 | 488,345 | 7,419 | 7,908 | 989 | 8,896 | 528 | 89.02 | –10.97 |
| 30 | 243,705 | 3,586 | 3,830 | 421 | 4,251 | 522 | 87.86 | –12.14 |
| 31 | 321,100 | 4,017 | 4,338 | 464 | 4,801 | 527 | 87.83 | –12.17 |
| 32 | 162,030 | 3,160 | 3,322 | 354 | 3,676 | 513 | 87.32 | –12.68 |
| Totals | 17,230,840 | 616,166 | 633,396 | 173,178 | 806,573 | ——— | ——— | ——— |
| Average Weighted Deviation — — — — — — — — — — — — — — — — — — — — — — — | | | | | | | | 6.65 |

FIGURE 10-8. MODEL IV-A REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

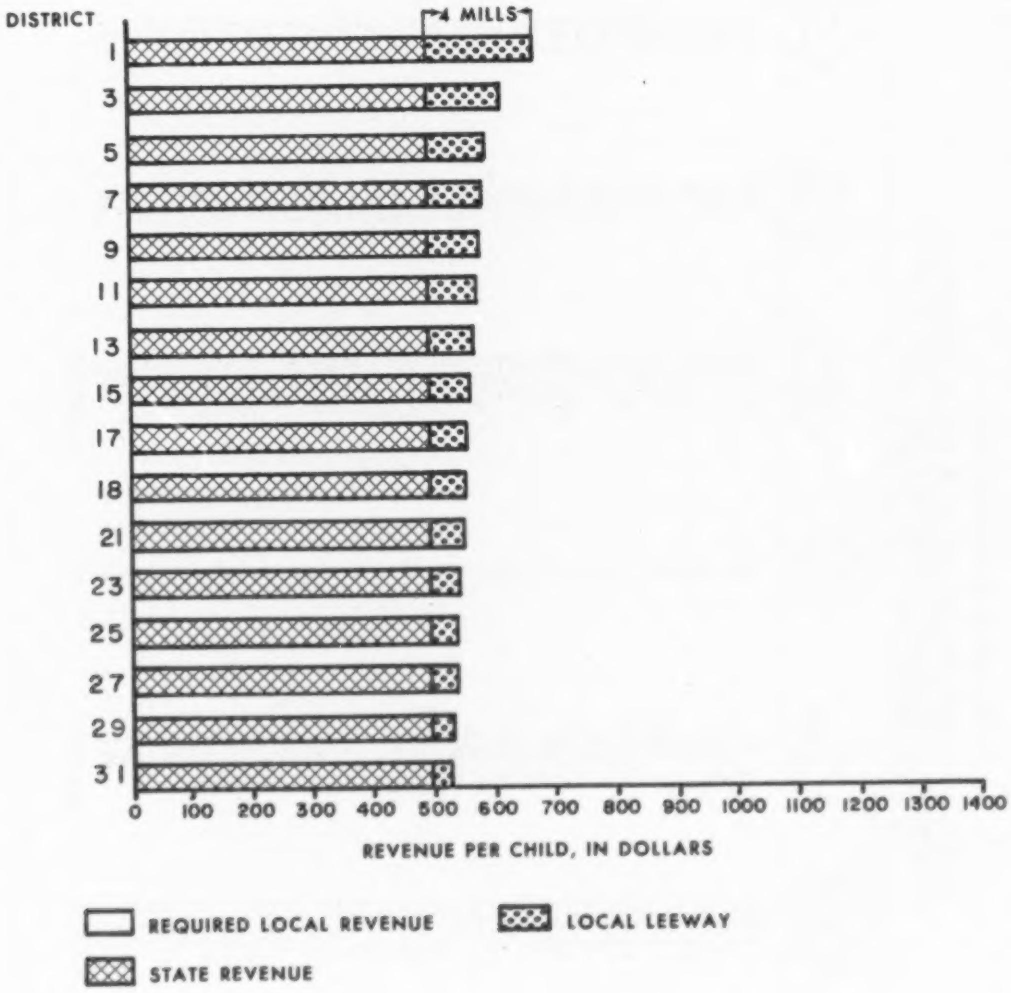


## TABLE 10-13—MODEL IV-B

### FLAT GRANT OF $493.7023 PER PUPIL IN WADM ALLOCATION FOR TRANSPORTATION EQUIVALENT OF 8 MILLS ON EAV PROVIDED TO STATE FOR DISTRIBUTION. LOCAL TAX RATE OF 4 MILLS

| | | *State Appropriation* | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *District* | *Amount Alloc for Trans in Dollars* | *$493.7023 Amt Allocated Per WADM in Thousands of Dollars* | *Total State Alloc in Thousands of Dollars* | *Local Revenue Yield of 4 Mill Levy in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per WADM Complete Equal Revenue in % in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation from 100% Equalized* |
| 1 | 28,140 | 8,854 | 8,882 | 3,085 | 11,968 | 667 | 117.89 | 17.89 |
| 2 | 0 | 6,736 | 6,736 | 2,242 | 8,978 | 658 | 116.57 | 16.57 |
| 3 | 129,600 | 20,871 | 21,000 | 5,146 | 26,147 | 619 | 108.98 | 8.98 |
| 4 | 2,025,199 | 79,042 | 81,067 | 18,497 | 99,565 | 622 | 107.76 | 7.76 |
| 5 | 156,585 | 3,793 | 3,949 | 724 | 4,673 | 608 | 104.02 | 4.02 |
| 6 | 217,838 | 6,528 | 6,746 | 1,173 | 7,919 | 599 | 103.09 | 3.09 |
| 7 | 631,659 | 9,732 | 10,364 | 1,719 | 12,083 | 613 | 102.76 | 2.76 |
| 8 | 65,285 | 1,187 | 1,252 | 208 | 1,460 | 607 | 102.66 | 2.66 |
| 9 | 344,760 | 5,328 | 5,673 | 907 | 6,580 | 610 | 102.23 | 2.23 |
| 10 | 2,275,609 | 87,404 | 89,680 | 14,347 | 104,027 | 588 | 101.78 | 1.78 |
| 11 | 89,440 | 2,009 | 2,099 | 313 | 2,412 | 593 | 101.04 | 1.04 |
| 12 | 104,762 | 3,043 | 3,148 | 473 | 3,621 | 588 | 101.04 | 1.04 |
| 13 | 140,800 | 2,969 | 3,110 | 430 | 3,540 | 589 | 100.13 | .13 |
| 14 | 2,227,033 | 103,370 | 105,597 | 14,860 | 120,458 | 575 | 100.04 | .04 |
| 15 | 283,465 | 3,573 | 3,857 | 488 | 4,345 | 600 | 99.45 | – .55 |
| 16 | 632,443 | 10,961 | 11,594 | 1,395 | 12,988 | 585 | 98.66 | –1.34 |
| 17 | 1,649,358 | 47,892 | 49,541 | 6,052 | 55,593 | 573 | 98.56 | –1.44 |
| 18 | 418,744 | 14,880 | 15,298 | 1,833 | 17,131 | 568 | 98.28 | –1.72 |
| 19 | 879,995 | 19,276 | 20,156 | 2,222 | 22,378 | 573 | 97.64 | –2.36 |
| 20 | 522,555 | 10,319 | 10,842 | 1,168 | 12,010 | 575 | 97.48 | –2.52 |
| 21 | 654,440 | 17,530 | 18,184 | 1,982 | 20,167 | 568 | 97.44 | –2.56 |
| 22 | 394,525 | 13,585 | 13,979 | 1,367 | 15,347 | 558 | 96.36 | –3.64 |
| 23 | 342,355 | 4,529 | 4,871 | 441 | 5,312 | 579 | 96.23 | –3.77 |
| 24 | 287,980 | 5,733 | 6,021 | 519 | 6,540 | 563 | 95.58 | –4.42 |
| 25 | 230,496 | 160,368 | 160,599 | 14,321 | 174,920 | 539 | 95.28 | –4.72 |
| 26 | 456,729 | 9,401 | 9,858 | 839 | 10,697 | 562 | 95.46 | –4.54 |
| 27 | 683,995 | 9,555 | 10,239 | 802 | 11,041 | 570 | 95.11 | –4.89 |
| 28 | 141,904 | 1,546 | 1,688 | 129 | 1,817 | 580 | 95.15 | –4.85 |
| 29 | 488,345 | 8,313 | 8,801 | 565 | 9,366 | 556 | 93.73 | –6.27 |
| 30 | 243,705 | 4,018 | 4,262 | 240 | 4,502 | 553 | 93.06 | –6.94 |
| 31 | 321,100 | 4,501 | 4,822 | 265 | 5,087 | 558 | 93.04 | –6.96 |
| 32 | 162,030 | 3,540 | 3,702 | 202 | 3,905 | 545 | 92.76 | –7.24 |
| Totals | 17,230,840 | 690,285 | 707,615 | 98,959 | 806,573 | —— | —— | —— |
| Average Weighted Deviation | — — — | — — — | — — — | — — — | — — — | — — — | — — — | 3.80 |

FIGURE 10-9. MODEL IV-B REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

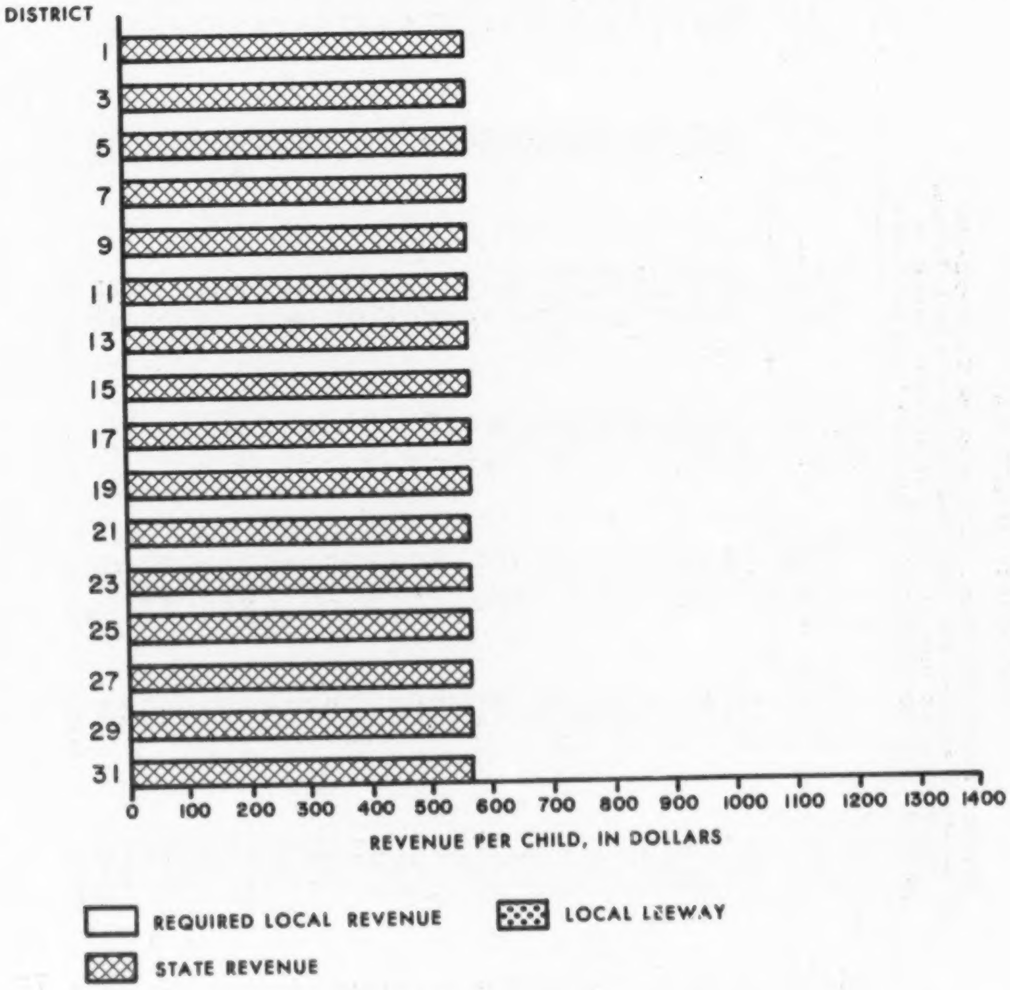


### TABLE 10-14—MODEL IV-C

FLAT GRANT OF $564.4685 PER PUPIL IN WADM ALLOCATION FOR TRANSPORTATION EQUIVALENT OF 12 MILLS ON EAV PROVIDED TO THE STATE FOR DISTRIBUTION. LOCAL TAX RATE OF 0 MILLS

| | | *State Appropriation* | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *District* | *Amount Alloc for Trans in Dollars* | *$564.4685 Amt Allocated Per WADM in Thousands of Dollars* | *Total State Alloc in Thousands of Dollars* | *Local Revenue Yield of 0 Mill Levy in Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per WADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation from 100% Equalized* |
| 1 | 28,140 | 10,123 | 10,151 | 0 | 10,151 | 566 | 100 | 0 |
| 2 | 0 | 7,702 | 7,702 | 0 | 7,702 | 564 | 100 | 0 |
| 3 | 129,600 | 23,862 | 23,992 | 0 | 23,992 | 568 | 100 | 0 |
| 4 | 2,025,199 | 90,372 | 92,397 | 0 | 92,397 | 577 | 100 | 0 |
| 5 | 156,585 | 4,336 | 4,493 | 0 | 4,493 | 585 | 100 | 0 |
| 6 | 217,838 | 7,464 | 7,682 | 0 | 7,682 | 581 | 100 | 0 |
| 7 | 631,659 | 11,127 | 11,758 | 0 | 11,758 | 597 | 100 | 0 |
| 8 | 65,285 | 1,357 | 1,422 | 0 | 1,422 | 592 | 100 | 0 |
| 9 | 344,760 | 6,092 | 6,437 | 0 | 6,437 | 596 | 100 | 0 |
| 10 | 2,275,609 | 99,932 | 102,208 | 0 | 102,208 | 577 | 100 | 0 |
| 11 | 89,440 | 2,297 | 2,387 | 0 | 2,387 | 586 | 100 | 0 |
| 12 | 104,762 | 3,479 | 3,584 | 0 | 3,584 | 581 | 100 | 0 |
| 13 | 140,800 | 3,395 | 3,536 | 0 | 3,536 | 588 | 100 | 0 |
| 14 | 2,227,033 | 118,187 | 120,414 | 0 | 120,414 | 574 | 100 | 0 |
| 15 | 283,465 | 4,086 | 4,369 | 0 | 4,369 | 604 | 100 | 0 |
| 16 | 632,443 | 12,532 | 13,165 | 0 | 13,165 | 593 | 100 | 0 |
| 17 | 1,649,358 | 54,756 | 56,406 | 0 | 56,406 | 582 | 100 | 0 |
| 18 | 418,744 | 17,013 | 17,431 | 0 | 17,431 | 578 | 100 | 0 |
| 19 | 879,995 | 22,039 | 22,919 | 0 | 22,919 | 587 | 100 | 0 |
| 20 | 522,555 | 11,799 | 12,321 | 0 | 12,321 | 589 | 100 | 0 |
| 21 | 654,440 | 20,043 | 20,698 | 0 | 20,698 | 583 | 100 | 0 |
| 22 | 394,525 | 15,532 | 15,926 | 0 | 15,926 | 579 | 100 | 0 |
| 23 | 342,355 | 5,178 | 5,520 | 0 | 5,520 | 602 | 100 | 0 |
| 24 | 287,980 | 6,555 | 6,843 | 0 | 6,843 | 589 | 100 | 0 |
| 25 | 230,496 | 183,355 | 183,586 | 0 | 183,586 | 565 | 100 | 0 |
| 26 | 456,729 | 10,749 | 11,205 | 0 | 11,205 | 588 | 100 | 0 |
| 27 | 683,995 | 10,924 | 11,608 | 0 | 1,1608 | 600 | 100 | 0 |
| 28 | 141,904 | 1,767 | 1,909 | 0 | 1,909 | 610 | 100 | 0 |
| 29 | 488,345 | 9,505 | 9,993 | 0 | 9,993 | 593 | 100 | 0 |
| 30 | 243,705 | 4,594 | 4,838 | 0 | 4,838 | 594 | 100 | 0 |
| 31 | 321,100 | 5,146 | 5,467 | 0 | 5,467 | 600 | 100 | 0 |
| 32 | 162,030 | 4,048 | 4,210 | 0 | 4,210 | 587 | 100 | 0 |
| Totals | 17,230,840 | 789,343 | 806,573 | 0 | 806,573 | | | |
| Average Weighted Deviation — — — | | | | | | | | 0 |

FIGURE 10-10. MODEL IV-C REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

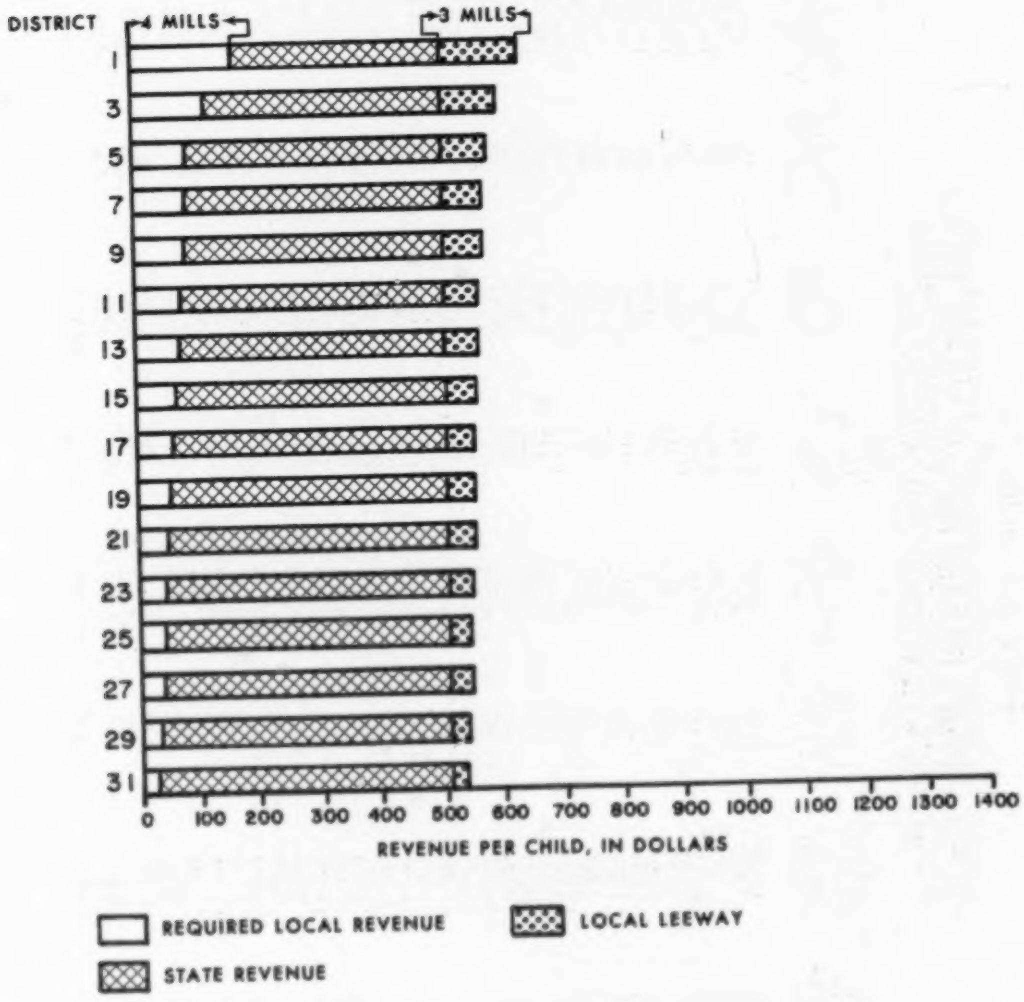


## TABLE 10-15—MODEL V-A

MINIMUM FOUNDATION PROGRAM ALLOCATION FOR TRANSPORTATION
ALLOCATION OF $511.3937 PER WADM EQUIVALENT OF 5 MILLS PROVIDED
TO THE STATE FOR DISTRIBUTION IN THE MINIMUM FOUNDATION
PROGRAM 4 MILL LEVY CHARGEBACK 3 MILL LEVY LOCAL TAX LEEWAY

| *District* | *Amt Alloc for Trans in Dollars* | *$511.3937 Asst Alloc Per WADM in Thousands of Dollars* | *State Appropriation Total Found Program in Thousands of Dollars* | *4 Mills × Equal Val in Thousands of Dollars* | *Total State Appropriation in Thousands of Dollars* | *Local Revenue 3 Mills × Equal Val in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per Pupil in WADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation From 100% Equalized* |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28,140 | 9,171 | 9,199 | 3,085 | 6,114 | 2,314 | 11,514 | 642 | 113.42 | 13.42 |
| 2 | 0 | 6,977 | 6,977 | 2,242 | 4,736 | 1,681 | 8,659 | 635 | 112.43 | 12.43 |
| 3 | 129,600 | 21,619 | 21,748 | 5,146 | 16,602 | 3,860 | 25,608 | 606 | 106.74 | 6.74 |
| 4 | 2,025,199 | 81,875 | 83,900 | 18,497 | 65,403 | 13,873 | 97,773 | 611 | 105.82 | 5.82 |
| 5 | 156,585 | 3,929 | 4,085 | 724 | 3,361 | 543 | 4,628 | 602 | 103.02 | 3.02 |
| 6 | 217,838 | 6,762 | 6,980 | 1,173 | 5,807 | 880 | 7,860 | 594 | 102.32 | 2.32 |
| 7 | 631.659 | 10,081 | 10,712 | 1,719 | 8,993 | 1,289 | 12,002 | 609 | 102.07 | 2.07 |
| 8 | 65,285 | 1,229 | 1,295 | 208 | 1,087 | 156 | 1,450 | 603 | 101.99 | 1.99 |
| 9 | 344,760 | 5,519 | 5,864 | 907 | 4,957 | 680 | 6,544 | 606 | 101.67 | 1.67 |
| 10 | 2,275,609 | 90,536 | 92,812 | 14,347 | 78,464 | 10,761 | 103,572 | 585 | 101.33 | 1.33 |
| 11 | 89,440 | 2,081 | 2,171 | 313 | 1,858 | 235 | 2,405 | 591 | 100.78 | .78 |
| 12 | 104,762 | 3,152 | 3,257 | 473 | 2,784 | 355 | 3,612 | 586 | 100.78 | .78 |
| 13 | 140,800 | 3,076 | 3,216 | 430 | 2,786 | 323 | 3,539 | 588 | 100.09 | .09 |
| 14 | 2,227,033 | 107,075 | 109,302 | 14,860 | 94,441 | 11,145 | 120,447 | 575 | 100.03 | .03 |
| 15 | 283,465 | 3,701 | 3,985 | 488 | 3,497 | 366 | 4,351 | 601 | 99.95 | – .41 |
| 16 | 632,443 | 11,354 | 11,986 | 1,395 | 10,592 | 1,046 | 13,032 | 587 | 98.99 | –1.01 |
| 17 | 1,649,358 | 49,608 | 51,257 | 6,052 | 45,205 | 4,539 | 55,796 | 575 | 98.92 | –1.08 |
| 18 | 418,744 | 15,413 | 15,832 | 1,833 | 13,999 | 1,375 | 17,206 | 571 | 98.71 | –1.29 |
| 19 | 879,995 | 19,967 | 20,847 | 2,222 | 18,625 | 1,666 | 22,513 | 577 | 98.23 | –1.77 |
| 20 | 522,555 | 10,689 | 11,212 | 1,168 | 10,043 | 876 | 12,088 | 578 | 98.11 | –1.89 |
| 21 | 654,440 | 18,159 | 18,813 | 1,982 | 16,831 | 1,487 | 20,300 | 572 | 98.08 | –1.92 |
| 22 | 394,525 | 14,072 | 14,466 | 1,367 | 13,099 | 1,026 | 15,492 | 563 | 97.27 | –2.73 |
| 23 | 342,355 | 4,691 | 5,033 | 441 | 4,592 | 331 | 5,364 | 585 | 97.18 | –2.82 |
| 24 | 287,980 | 5,938 | 6,226 | 519 | 5,707 | 389 | 6,616 | 570 | 96.69 | –3.31 |
| 25 | 230,496 | 166,115 | 166,346 | 14,321 | 152,024 | 10,741 | 177,087 | 545 | 96.46 | –3.54 |
| 26 | 456,729 | 9,738 | 10,195 | 839 | 9,355 | 630 | 10,824 | 568 | 96.60 | –3.40 |
| 27 | 683,995 | 9,897 | 10,581 | 802 | 9,779 | 602 | 11,183 | 578 | 96.33 | –3.67 |
| 28 | 141,904 | 1,601 | 1,743 | 129 | 1,614 | 97 | 1,840 | 588 | 96.36 | –3.64 |
| 29 | 488,345 | 8,611 | 9,099 | 565 | 8,534 | 424 | 9,523 | 566 | 95.30 | –4.70 |
| 30 | 243,705 | 4,162 | 4,406 | 240 | 4,166 | 180 | 4,586 | 563 | 94.80 | –5.20 |
| 31 | 321,100 | 4,662 | 4,983 | 265 | 4,718 | 199 | 5,182 | 568 | 94.78 | –5.22 |
| 32 | 162,030 | 3,667 | 3,829 | 202 | 3,627 | 152 | 3,981 | 555 | 94.57 | –5.43 |
| Totals | 17,230,840 | 715,124 | 732,355 | 98,959 | 633,396 | 74,219 | 806,573 | —— | —— | —— |
| Average Weighted Deviation | — — — | — — — | — — — | — — — | — — — | — — — | — — — | —— — — | — — — | 2.85 |

FIGURE 10-11. MODEL V-A REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

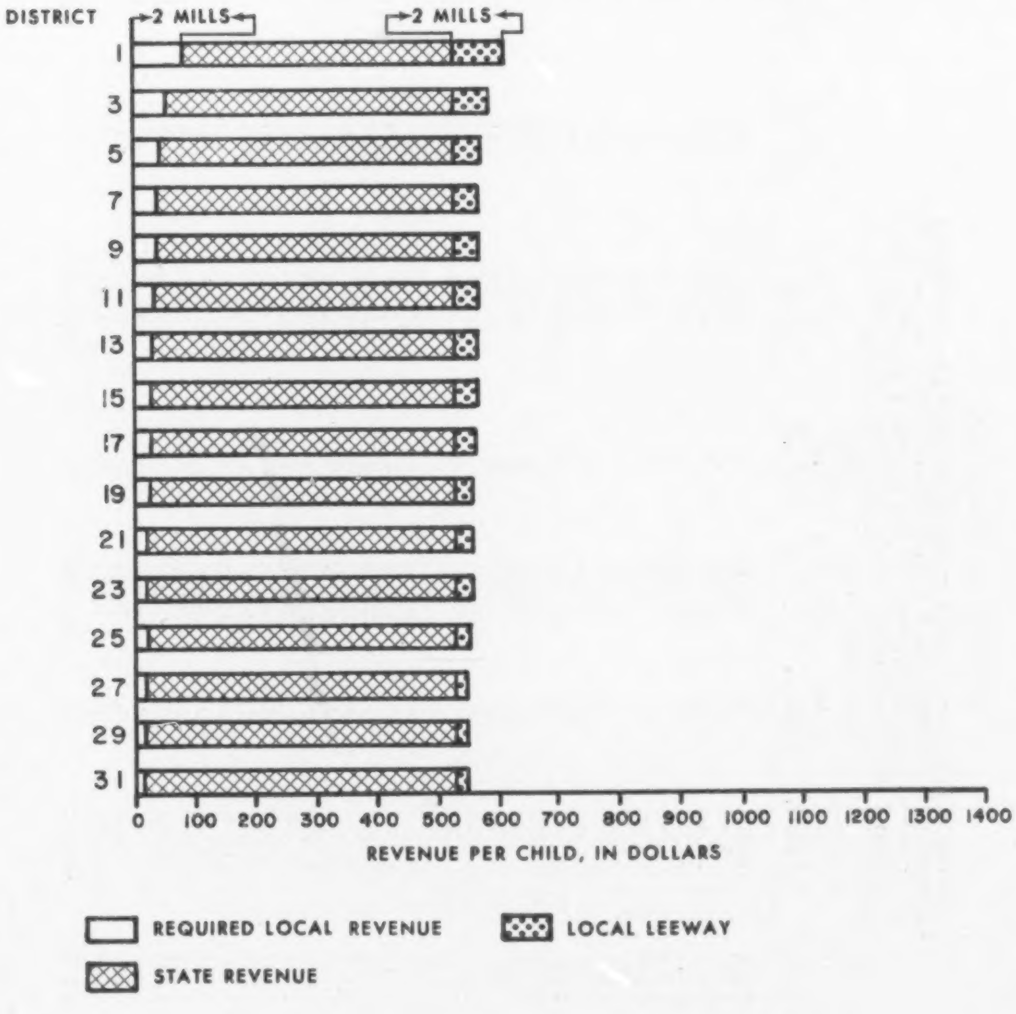


## TABLE 10-16—MODEL V-B

### MINIMUM FOUNDATION PROGRAM ALLOCATION FOR TRANSPORTATION ALLOCATION OF $529.0854 PER WADM EQUIVALENT OF 8 MILLS PROVIDED TO THE STATE FOR DISTRIBUTION IN THE MINIMUM FOUND PROGRAM 2 MILL LEVY CHARGEBACK 2 MILL LEVY LOCAL TAX LEEWAY

| *District* | *Amt Alloc for Trans in Dollars* | *$529.0854 Amt Alloc Per WADM in Thousands of Dollars* | *State Appropriation Total Found Program in Thousands of Dollars* | *2 Mills × Equal Val in Thousands of Dollars* | *Total State Appropriation in Thousands of Dollars* | *Local Revenue 2 Mills × Equal Val in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per Pupil in WADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation from 100% Equalized* |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28,140 | 9,489 | 9,517 | 1,543 | 7,974 | 1,543 | 11,059 | 617 | 108.95 | 8.95 |
| 2 | 0 | 7,219 | 7,219 | 1,121 | 6,098 | 1,121 | 8,340 | 611 | 108.28 | 8.28 |
| 3 | 129,600 | 22,367 | 22,496 | 2,573 | 19,923 | 2,573 | 25,069 | 593 | 104.49 | 4.49 |
| 4 | 2,025,199 | 84,707 | 86,732 | 9,249 | 77,484 | 9,249 | 95,981 | 600 | 103.88 | 3.88 |
| 5 | 156,585 | 4,064 | 4,221 | 362 | 3,859 | 362 | 4,583 | 597 | 102.01 | 2.01 |
| 6 | 217,838 | 6,996 | 7,214 | 587 | 6,627 | 587 | 7,801 | 590 | 101.55 | 1.55 |
| 7 | 631,659 | 10,429 | 11,061 | 860 | 10,201 | 860 | 11,921 | 605 | 101.38 | 1.38 |
| 8 | 65,285 | 1,272 | 1,337 | 104 | 1,233 | 104 | 1,441 | 599 | 101.33 | 1.33 |
| 9 | 344,760 | 5,710 | 6,055 | 454 | 5,601 | 454 | 6,508 | 603 | 101.11 | 1.11 |
| 10 | 2,275,609 | 93,668 | 95,944 | 7,174 | 88,770 | 7,174 | 103,117 | 582 | 100.89 | .89 |
| 11 | 89,440 | 2,153 | 2,243 | 156 | 2,086 | 156 | 2,399 | 589 | 100.52 | .52 |
| 12 | 104,762 | 3,261 | 3,366 | 237 | 3,129 | 237 | 3,603 | 584 | 100.52 | .52 |
| 13 | 140,800 | 3,182 | 3,323 | 215 | 3,108 | 215 | 3,538 | 588 | 100.06 | .06 |
| 14 | 2,227,033 | 110,779 | 113,006 | 7,430 | 105,577 | 7,430 | 120,436 | 575 | 100.02 | .02 |
| 15 | 283,465 | 3,830 | 4,113 | 244 | 3,869 | 244 | 4,357 | 602 | 99.72 | – .28 |
| 16 | 632,443 | 11,747 | 12,379 | 697 | 11,682 | 697 | 13,076 | 589 | 99.33 | – .67 |
| 17 | 1,649,358 | 51,324 | 52,973 | 3,026 | 49,947 | 3,026 | 55,999 | 577 | 99.28 | – .72 |
| 18 | 418,744 | 15,946 | 16,365 | 916 | 15,448 | 916 | 17,281 | 573 | 99.14 | – .86 |
| 19 | 879,995 | 20,658 | 21,538 | 1,111 | 20,427 | 1,111 | 22,648 | 580 | 98.82 | –1.18 |
| 20 | 522,555 | 11,059 | 11,581 | 584 | 10,997 | 584 | 12,166 | 582 | 98.74 | –1.26 |
| 21 | 654,440 | 18,787 | 19,441 | 991 | 18,450 | 991 | 20,432 | 575 | 98.72 | –1.28 |
| 22 | 394,525 | 14,558 | 14,953 | 684 | 14,269 | 684 | 15,637 | 568 | 98.18 | –1.82 |
| 23 | 342,355 | 4,853 | 5,196 | 221 | 4,975 | 221 | 5,416 | 590 | 98.12 | –1.88 |
| 24 | 287,980 | 6,144 | 6,432 | 260 | 6,172 | 260 | 6,691 | 576 | 97.79 | –2.21 |
| 25 | 230,496 | 171,862 | 172,092 | 7,161 | 164,932 | 7,161 | 179,253 | 552 | 97.64 | –2.36 |
| 26 | 456,729 | 10,075 | 10,532 | 420 | 10,112 | 420 | 10,951 | 575 | 97.73 | –2.27 |
| 27 | 683,995 | 10,239 | 10,923 | 401 | 10,522 | 401 | 11,324 | 585 | 97.56 | –2.44 |
| 28 | 141,904 | 1,657 | 1,798 | 64 | 1,734 | 64 | 1,863 | 595 | 97.58 | –2.42 |
| 29 | 488,345 | 8,909 | 9,397 | 282 | 9,115 | 282 | 9,680 | 575 | 96.86 | –3.14 |
| 30 | 243,705 | 4,306 | 4,550 | 120 | 4,430 | 120 | 4,670 | 574 | 96.53 | –3.47 |
| 31 | 321,100 | 4,823 | 5,144 | 132 | 5,012 | 132 | 5,277 | 579 | 96.52 | –3.48 |
| 32 | 162,030 | 3,794 | 3,956 | 101 | 3,855 | 101 | 4,057 | 566 | 96.38 | –3.62 |
| Totals | 17,230,840 | 739,864 | 757,095 | 49,480 | 707,615 | 49,479 | 806,573 | | | |
| Average Weighted Deviation | | | | | | | | | | 1.90 |

FIGURE 10-12. MODEL V-B REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

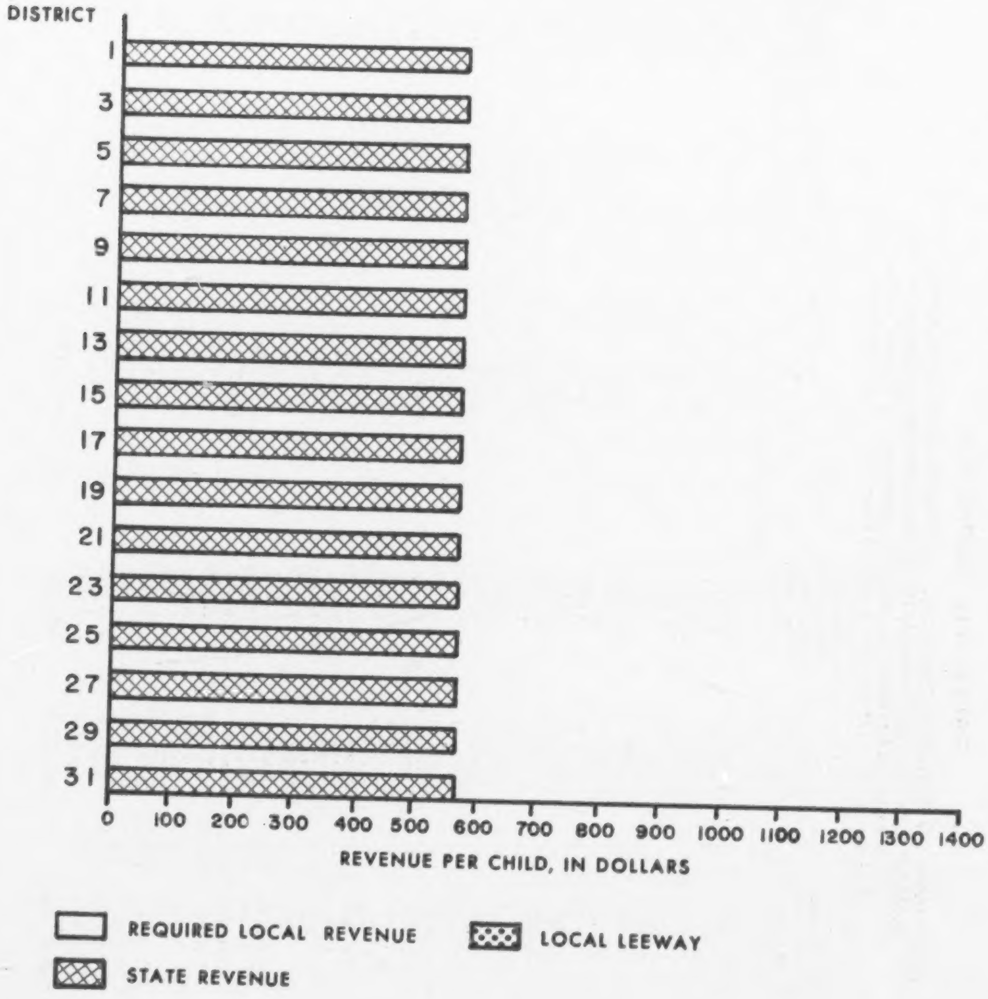


## TABLE 10-17—MODEL V-C

### MINIMUM FOUNDATION PROGRAM ALLOCATION FOR TRANSPORTATION ALLOCATION OF $564.4685 PER WADM EQUIVALENT OF 12 MILLS PROVIDED TO THE STATE FOR DISTRIBUTION IN THE MINIMUM FOUND PROGRAM 0 MILL LEVY CHARGEBACK 0 MILL LEVY LOCAL TAX LEEWAY

| District | Amt Alloc for Trans in Dollars | $564.4685 Amt Alloc Per WADM in Thousands of Dollars | Total Found Program in Thousands of Dollars | State Appropriations | | Local Revenue 0 Mills Equal Val in Dollars | Total Revenue in Thousands of Dollars | Total Revenue Per Pupil in WADM in Dollars | Ratio of Dist Revenue to Complete Equal Revenue in % | Deviation From 100% Equalized |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | O Mills Equal Val in Dollars | Total State Appropriation in Thousands of Dollars | | | | | |
| 1 | 28,140 | 10,123 | 10,151 | 0 | 10,151 | 0 | 10,151 | 566 | 100 | 0 |
| 2 | 0 | 7,702 | 7,702 | 0 | 7,702 | 0 | 7,702 | 564 | 100 | 0 |
| 3 | 129,600 | 23,862 | 23,992 | 0 | 23,992 | 0 | 23,992 | 568 | 100 | 0 |
| 4 | 2,025,199 | 90,372 | 92,397 | 0 | 92,397 | 0 | 92,397 | 577 | 100 | 0 |
| 5 | 156,585 | 4,336 | 4,493 | 0 | 4,493 | 0 | 4,493 | 585 | 100 | 0 |
| 6 | 217,838 | 7,464 | 7,682 | 0 | 7,682 | 0 | 7,682 | 581 | 100 | 0 |
| 7 | 631,659 | 11,127 | 11,758 | 0 | 11,758 | 0 | 11,758 | 597 | 100 | 0 |
| 8 | 65,285 | 1,357 | 1,422 | 0 | 1,422 | 0 | 1,422 | 592 | 100 | 0 |
| 9 | 344,760 | 6,092 | 6,437 | 0 | 6,437 | 0 | 6,437 | 596 | 100 | 0 |
| 10 | 2,275,609 | 99,932 | 102,208 | 0 | 102,208 | 0 | 102,208 | 577 | 100 | 0 |
| 11 | 89,440 | 2,297 | 2,387 | 0 | 2,387 | 0 | 2,387 | 586 | 100 | 0 |
| 12 | 104,762 | 3,479 | 3,584 | 0 | 3,584 | 0 | 3,584 | 581 | 100 | 0 |
| 13 | 140,800 | 3,395 | 3,536 | 0 | 3,536 | 0 | 3,536 | 588 | 100 | 0 |
| 14 | 2,227,033 | 118,187 | 120,414 | 0 | 120,414 | 0 | 120,414 | 575 | 100 | 0 |
| 15 | 283,465 | 4,086 | 4,369 | 0 | 4,369 | 0 | 4,369 | 604 | 100 | 0 |
| 16 | 632,443 | 12,532 | 13,165 | 0 | 13,165 | 0 | 13,165 | 593 | 100 | 0 |
| 17 | 1,649,358 | 54,756 | 56,406 | 0 | 56,406 | 0 | 56,406 | 581 | 100 | 0 |
| 18 | 418,744 | 17,013 | 17,431 | 0 | 17,431 | 0 | 17,431 | 578 | 100 | 0 |
| 19 | 879,995 | 22,039 | 22,919 | 0 | 22,919 | 0 | 22,919 | 587 | 100 | 0 |
| 20 | 522,555 | 11,799 | 12,321 | 0 | 12,321 | 0 | 12,321 | 589 | 100 | 0 |
| 21 | 654,440 | 20,043 | 20,698 | 0 | 20,698 | 0 | 20,698 | 583 | 100 | 0 |
| 22 | 394,525 | 15,532 | 15,926 | 0 | 15,926 | 0 | 15,926 | 579 | 100 | 0 |
| 23 | 342,355 | 5,178 | 5,520 | 0 | 5,520 | 0 | 5,520 | 602 | 100 | 0 |
| 24 | 287,980 | 6,555 | 6,843 | 0 | 6,843 | 0 | 6,843 | 589 | 100 | 0 |
| 25 | 230,496 | 183,355 | 183,386 | 0 | 183,586 | 0 | 183,586 | 565 | 100 | 0 |
| 26 | 456,729 | 10,749 | 11,205 | 0 | 11,205 | 0 | 11,205 | 588 | 100 | 0 |
| 27 | 683,995 | 10,924 | 11,608 | 0 | 11,608 | 0 | 11,608 | 600 | 100 | 0 |
| 28 | 141,904 | 1,767 | 1,909 | 0 | 1,909 | 0 | 1,909 | 610 | 100 | 0 |
| 29 | 488,345 | 9,505 | 9,993 | 0 | 9,993 | 0 | 9,993 | 593 | 100 | 0 |
| 30 | 243,705 | 4,594 | 4,838 | 0 | 4,838 | 0 | 4,838 | 594 | 100 | 0 |
| 31 | 321,100 | 5,146 | 5.467 | 0 | 5,467 | 0 | 5,467 | 600 | 100 | 0 |
| 32 | 162,030 | 4,049 | 4,210 | 0 | 4,210 | 0 | 4,210 | 587 | 100 | 0 |
| Totals | 17,230,840 | 789,343 | 806,573 | 0 | 806,573 | 0 | 806,573 | — | — | — |
| Average Weighted Deviation | | | | | | | | | | 0 |

FIGURE 10-13. MODEL V-C REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

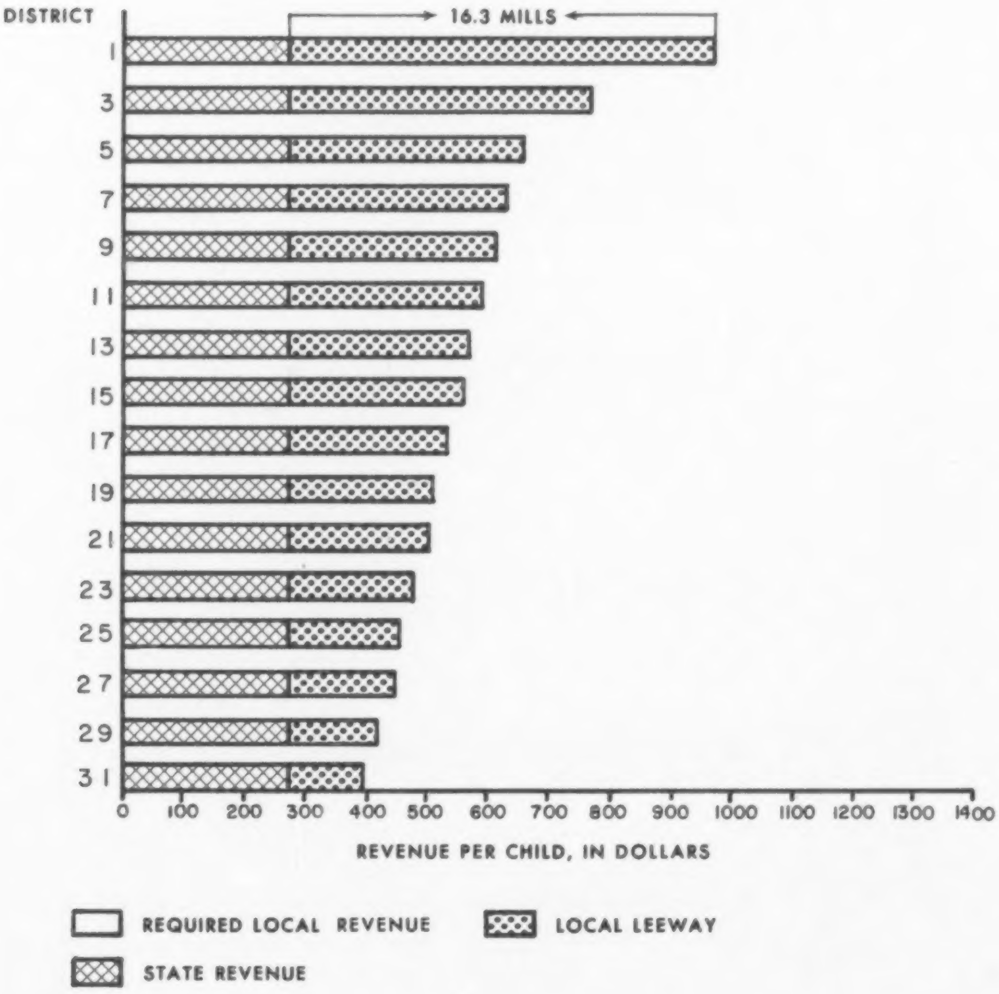


## TABLE 10-18—MODEL VI-A

### FLAT GRANT OF $276.0942 PER PUPIL IN WADM 50% OF REVENUE FROM STATE FUNDS 50% OF REVENUE FROM LOCAL FUNDS ALLOCATION FOR TRANSPORTATION LOCAL TAX RATE OF 16.3 MILLS

| District | Amount Alloc for Trans in Dollars | State Appropriations 276.0942 Amt Allocated Per WADM in Thousands of Dollars | Total State Alloc in Thousands of Dollars | Local Revenue Yield of 16.3 Mill Levy in Thousands of Dollars | Total Revenue in Thousands of Dollars | Total Revenue Per WADM in Dollars | Ratio of Dist Revenue To Complete Equal Revenue in % | Deviation from 100% Equalized |
|---|---|---|---|---|---|---|---|---|
| 1 | 28,140 | 4,951 | 4,980 | 12,573 | 17,553 | 979 | 173 | 72.91 |
| 2 | 0 | 3,767 | 3,767 | 9,135 | 12,902 | 946 | 168 | 67.52 |
| 3 | 129,600 | 11,672 | 11,801 | 20,972 | 32,773 | 775 | 137 | 36.60 |
| 4 | 2,025,199 | 44,203 | 46,228 | 75,376 | 121,604 | 760 | 132 | 31.61 |
| 5 | 156,585 | 2,121 | 2,278 | 2,951 | 5,229 | 681 | 116 | 16.38 |
| 6 | 217,838 | 3,651 | 3,869 | 4,781 | 8,650 | 654 | 113 | 12.60 |
| 7 | 631,659 | 5,442 | 6,074 | 7,006 | 13,080 | 664 | 111 | 11.24 |
| 8 | 65,285 | 664 | 729 | 847 | 1,576 | 656 | 111 | 10.83 |
| 9 | 344,760 | 2,980 | 3,324 | 3,697 | 7,021 | 651 | 109 | 9.08 |
| 10 | 2,275,609 | 48,880 | 51,155 | 58,466 | 109,620 | 619 | 107 | 7.25 |
| 11 | 89,440 | 1,124 | 1,213 | 1,275 | 2,488 | 611 | 104 | 4.23 |
| 12 | 104,762 | 1,702 | 1,807 | 1,929 | 3,736 | 606 | 104 | 4.23 |
| 13 | 140,800 | 1,660 | 1,801 | 1,753 | 3,554 | 591 | 101 | .516 |
| 14 | 2,227,033 | 57,808 | 60,035 | 60,556 | 120,591 | 576 | 100 | .147 |
| 15 | 283,465 | 1,998 | 2,282 | 1,989 | 4,271 | 590 | 98 | – 2.25 |
| 16 | 632,443 | 6,130 | 6,762 | 5,683 | 12,445 | 561 | 95 | – 5.47 |
| 17 | 1,649,358 | 26,783 | 28,432 | 24,661 | 53,093 | 547 | 94 | – 5.87 |
| 18 | 418,744 | 8,321 | 8,740 | 7,469 | 16,209 | 538 | 93 | – 7.01 |
| 19 | 879,995 | 10,780 | 11,660 | 9,054 | 20,714 | 531 | 90 | – 9.62 |
| 20 | 522,555 | 5,774 | 6,293 | 4,760 | 11,054 | 529 | 90 | –10.28 |
| 21 | 654,440 | 9,804 | 10,458 | 8,078 | 18,536 | 522 | 90 | –10.44 |
| 22 | 394,525 | 7,597 | 7,992 | 5,573 | 13,564 | 493 | 85 | –14.83 |
| 23 | 342,355 | 2,533 | 2,875 | 1,798 | 4,673 | 509 | 85 | –15.35 |
| 24 | 287,980 | 3,206 | 3,494 | 2,116 | 5,610 | 483 | 82 | –18.01 |
| 25 | 230,496 | 89,683 | 89,914 | 58,360 | 148,274 | 456 | 81 | –19.23 |
| 26 | 456,729 | 5,257 | 5,714 | 3,420 | 9,134 | 480 | 82 | –18.48 |
| 27 | 683,995 | 5,343 | 6,027 | 3,268 | 9,296 | 480 | 80 | –19.92 |
| 28 | 141,904 | 864 | 1,006 | 526 | 1,532 | 489 | 80 | –19.76 |
| 29 | 488,345 | 4,649 | 5,137 | 2,302 | 7,439 | 442 | 74 | –25.55 |
| 30 | 243,705 | 2,247 | 2,491 | 980 | 3,471 | 427 | 72 | –28.26 |
| 31 | 321,100 | 2,517 | 2,838 | 1,079 | 3,917 | 430 | 72 | –28.34 |
| 32 | 162,030 | 1,980 | 2,142 | 825 | 2,967 | 414 | 70 | –29.52 |
| Totals | 17,230,840 | 386,085 | 403,315 | 403,255 | 806,572 | ——— | ——— | ——— |
| Average Weighted Deviation — — — — — — — — — — — — — — — — — — — — — — — — — — |  |  |  |  |  |  |  | 15.48 |

FIGURE 10-14. MODEL VI-A REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

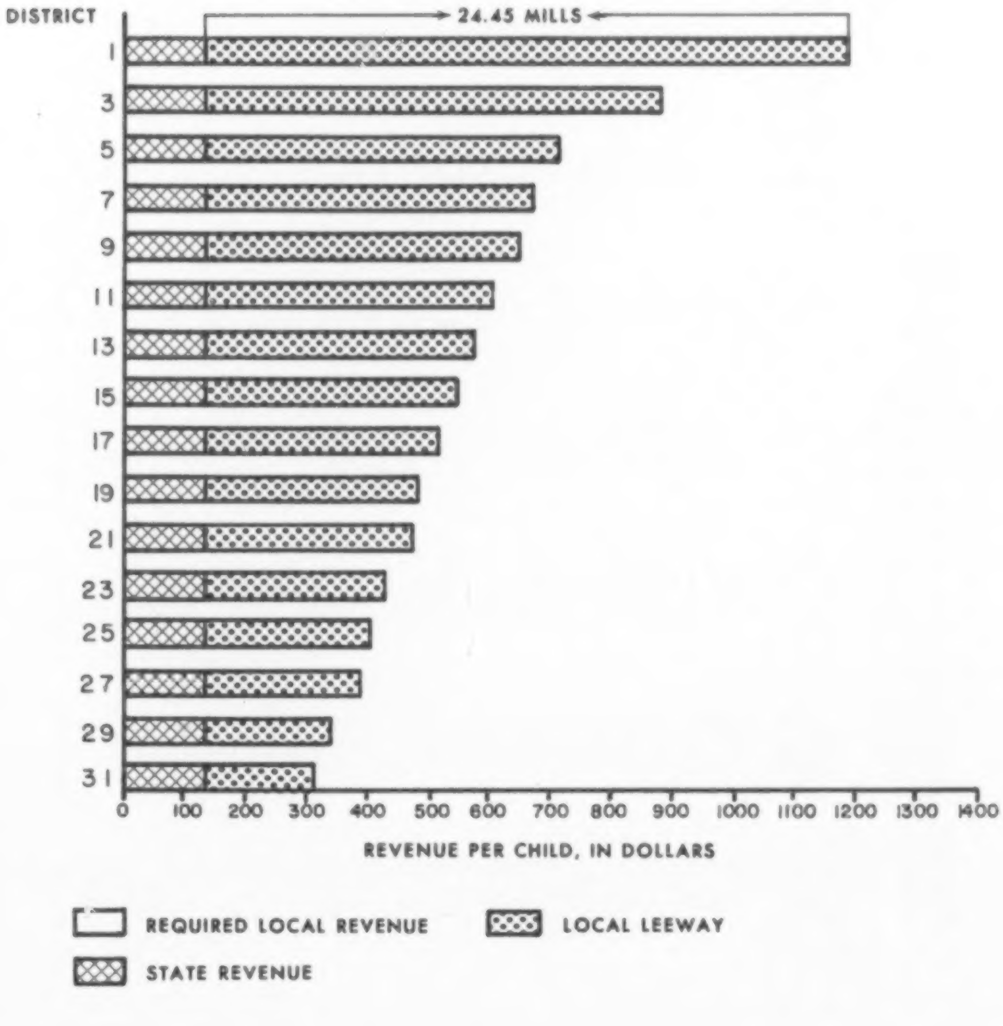


## TABLE 10-19—MODEL VI-B

### FLAT GRANT OF $131.8751 PER PUPIL IN WADM 25% OF REVENUE FROM STATE FUNDS 75% OF REVENUE FROM LOCAL FUNDS ALLOCATION FOR TRANSPORTATION LOCAL TAX RATE OF 24.452 MILLS

| | | *State Appropriations $131.8751* | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *District* | *Amount Alloc for Trans in Dollars* | *Amt Allocated Per WADM In Thousands of Dollars* | *Total State Alloc In Thousands of Dollars* | *Local Rev Yield of 24.452 Mill Levy In Thousands of Dollars* | *Total Revenue In Thousands of Dollars* | *Total Revenue Per WADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation From 100% Equalized* |
| 1 | 28,140 | 2,365 | 2,393 | 18,861 | 21,255 | 1,185 | 209.38 | 109.38 |
| 2 | 0 | 1,799 | 1,799 | 13,703 | 15,503 | 1,136 | 201.29 | 101.29 |
| 3 | 129,600 | 5,575 | 5,704 | 31,461 | 37,165 | 879 | 154.91 | 54.91 |
| 4 | 2,025,199 | 21,113 | 23,139 | 113,074 | 136,212 | 851 | 147.42 | 47.42 |
| 5 | 156,585 | 1,013 | 1,170 | 4,428 | 5,597 | 729 | 124.58 | 24.58 |
| 6 | 217,838 | 1,744 | 1,962 | 7,172 | 9,134 | 691 | 118.90 | 18.90 |
| 7 | 631,659 | 2,600 | 3,231 | 10,509 | 13,740 | 697 | 116.86 | 16.81 |
| 8 | 65,285 | 317 | 382 | 1,271 | 1,653 | 688 | 116.24 | 16.24 |
| 9 | 344,760 | 1,423 | 1,768 | 5,545 | 7,313 | 678 | 113.62 | 13.62 |
| 10 | 2,275,609 | 23,347 | 25,623 | 87,706 | 113,328 | 640 | 110.88 | 10.88 |
| 11 | 89,440 | 537 | 626 | 1,912 | 2,538 | 624 | 106.34 | 6.34 |
| 12 | 104,762 | 813 | 918 | 2,894 | 3,812 | 618 | 106.35 | 6.35 |
| 13 | 140,800 | 793 | 934 | 2,629 | 3,563 | 592 | 100.77 | .77 |
| 14 | 2,227,033 | 27,612 | 29,839 | 90,841 | 120,680 | 576 | 100.22 | .22 |
| 15 | 283,465 | 955 | 1,238 | 2,984 | 4,222 | 583 | 96.63 | – 3.37 |
| 16 | 632,443 | 2,928 | 3,560 | 8,525 | 12,085 | 544 | 91.80 | – 8.20 |
| 17 | 1,649,358 | 12,793 | 14,442 | 36,995 | 51,437 | 530 | 91.19 | – 8.81 |
| 18 | 418,744 | 3,975 | 4,393 | 11,204 | 15,597 | 518 | 89.48 | –10.52 |
| 19 | 879,995 | 5,149 | 6,029 | 13,582 | 19,611 | 502 | 85.56 | –14.44 |
| 20 | 522,555 | 2,756 | 3,279 | 7,141 | 10,420 | 499 | 84.57 | –15.43 |
| 21 | 654,440 | 4,683 | 5,337 | 12,119 | 17,456 | 492 | 84.33 | –15.66 |
| 22 | 394,525 | 3,629 | 4,023 | 8,359 | 12,383 | 450 | 77.75 | –22.25 |
| 23 | 342,355 | 1,210 | 1,552 | 2,697 | 4,249 | 463 | 76.98 | –23.02 |
| 24 | 287,980 | 1,531 | 1,819 | 3,175 | 4,994 | 430 | 72.98 | –27.02 |
| 25 | 230,496 | 42,837 | 43,067 | 87,547 | 130,614 | 402 | 71.15 | –28.85 |
| 26 | 456,729 | 2,511 | 2,968 | 5,131 | 8,099 | 425 | 72.28 | –27.72 |
| 27 | 683,995 | 2,552 | 3,236 | 4,903 | 8,139 | 421 | 70.12 | –29.88 |
| 28 | 141,904 | 413 | 555 | 788 | 1,343 | 429 | 70.35 | –29.65 |
| 29 | 488,345 | 2,221 | 2,709 | 3,454 | 6,162 | 366 | 61.67 | –38.33 |
| 30 | 243,705 | 1,073 | 1,317 | 1,470 | 2,787 | 342 | 57.60 | –42.40 |
| 31 | 321,100 | 1,202 | 1,523 | 1,619 | 3,142 | 345 | 57.48 | –42.52 |
| 32 | 162,030 | 946 | 1,108 | 1,238 | 2,345 | 327 | 55.71 | –44.29 |
| Totals | 17,230,840 | 184,412 | 201,643 | 604,933 | 806,573 | ——— | ——— | ——— |
| Average Weighted Deviation — — — — — — — — — — — — — — — — — — — — — — — — — — — — | | | | | | | | 23.23 |

FIGURE 10-15. MODEL VI-B REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

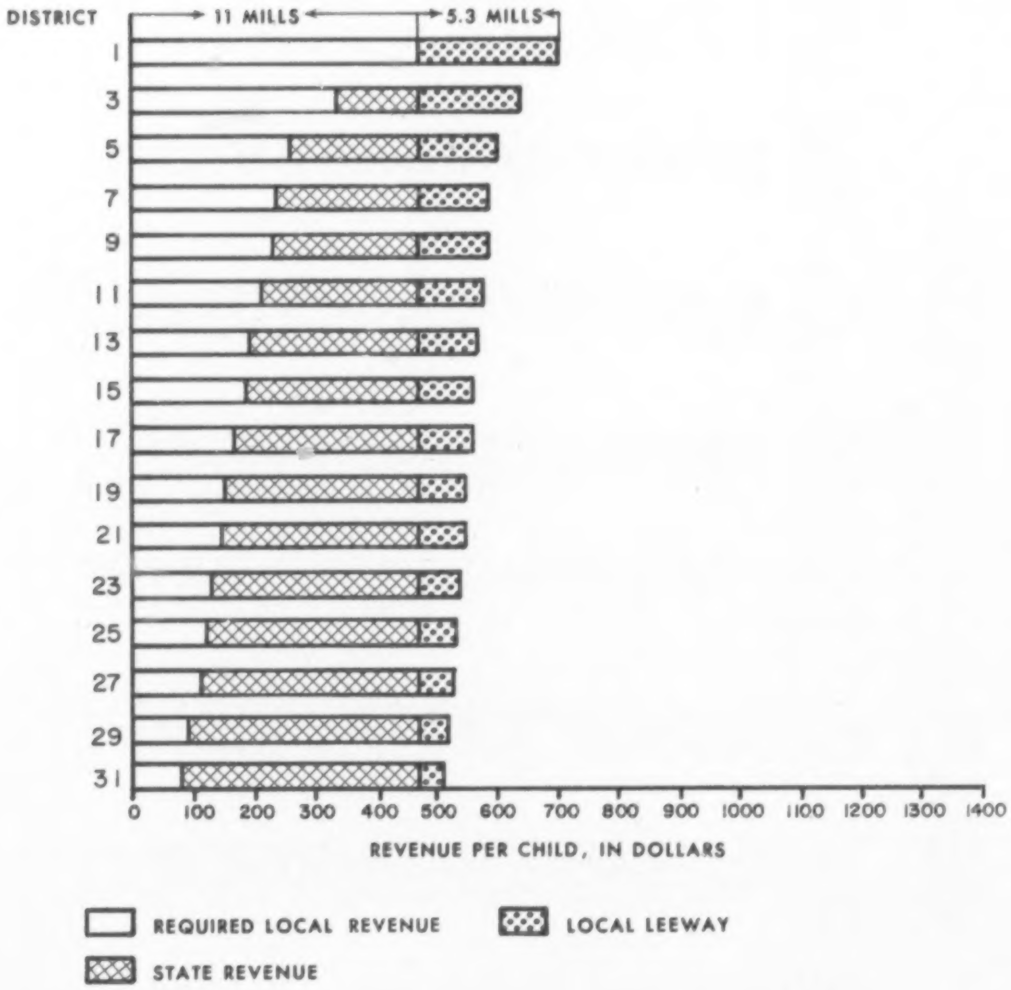


## TABLE 10-20—MODEL VII-A

MINIMUM FOUNDATION PROGRAM ALLOCATION FOR TRANSPORTATION
ALLOCATION OF $470.7028 PER WADM 11 MILL LEVY CHARGEBACK
5.3 MILL LEVY LOCAL TAX LEEWAY 50% REVENUE FROM STATE FUNDS
50% REVENUE FROM LOCAL FUNDS

| District | *Amt Alloc For Trans in Dollars* | *470.7028 Amt Alloc Per WADM in Thousands of Dollars* | *State Appropriations Total Found Program in Thousands of Dollars* | *11 Mill × Equal Val in Thousands of Dollars* | *Total State Appropriation in Thousands of Dollars* | *Local Revenue 5.3 Mills × Equal Val in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per Pupil in WADM in Dollars* | *Ratio of Dist Revenue To Complete Equal Revenue in %* | *Deviation From 100% Equalized* |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28,140 | 8,442 | 8,470 | 8,485 | -15 | 4,088 | 12,558 | 700 | 123.71 | 23.71 |
| 2 | 0 | 6,422 | 6,422 | 6,165 | 258 | 2,970 | 9,392 | 688 | 121.95 | 21.95 |
| 3 | 129,600 | 19,898 | 20,028 | 14,153 | 5,875 | 6,819 | 26,847 | 635 | 111.90 | 11.90 |
| 4 | 2,025,199 | 73,360 | 77,385 | 50,867 | 26,518 | 24,509 | 101,894 | 636 | 110.28 | 10.28 |
| 5 | 156,585 | 3,616 | 3,773 | 1,992 | 1,781 | 960 | 4,732 | 616 | 105.33 | 5.33 |
| 6 | 217,838 | 6,224 | 6,442 | 3,226 | 3,216 | 1,555 | 7,996 | 605 | 104.10 | 4.10 |
| 7 | 631,659 | 9,278 | 9,910 | 4,728 | 5,182 | 2,278 | 12,188 | 618 | 103.65 | 3.65 |
| 8 | 65,285 | 1,132 | 1,197 | 572 | 625 | 275 | 1,472 | 612 | 103.52 | 3.52 |
| 9 | 344,760 | 5,080 | 5,425 | 2,495 | 2,930 | 1,202 | 6,627 | 614 | 102.95 | 2.95 |
| 10 | 2,275,609 | 83,332 | 85,608 | 39,455 | 46,153 | 19,010 | 104,618 | 591 | 102.36 | 2.36 |
| 11 | 89,440 | 1,916 | 2,005 | 860 | 1,145 | 414 | 2,420 | 595 | 101.37 | 1.37 |
| 12 | 104,762 | 2,901 | 3,006 | 1,302 | 1,704 | 627 | 3,633 | 589 | 101.38 | 1.38 |
| 13 | 140,800 | 2,831 | 2,972 | 1,183 | 1,789 | 570 | 3,541 | 589 | 100.17 | .17 |
| 14 | 2,227,003 | 98,555 | 100,782 | 40,866 | 59,916 | 19,690 | 120,472 | 575 | 100.05 | .05 |
| 15 | 283,465 | 3,407 | 3,690 | 1,342 | 2,348 | 647 | 4,337 | 599 | 99.27 | - .73 |
| 16 | 632,443 | 10,450 | 11,083 | 3,835 | 7,248 | 1,848 | 12,931 | 582 | 98.22 | -1.78 |
| 17 | 1,649,358 | 45,660 | 47,310 | 16,643 | 30,667 | 8,019 | 55,329 | 570 | 98.09 | -1.91 |
| 18 | 418,744 | 14,187 | 14,605 | 5,040 | 9,565 | 2.428 | 17,034 | 565 | 97.72 | -2.28 |
| 19 | 879,995 | 18,378 | 19,258 | 6,110 | 13,148 | 2,944 | 22,202 | 569 | 96.87 | -3.13 |
| 20 | 522,555 | 9,839 | 10,361 | 3,213 | 7,149 | 1,548 | 11,909 | 570 | 96.66 | -3.34 |
| 21 | 654,440 | 16,713 | 17,368 | 5,452 | 11,916 | 2,627 | 19,995 | 563 | 96.60 | -3.40 |
| 22 | 394,525 | 12,951 | 13,346 | 3,761 | 9,586 | 1,812 | 15,158 | 551 | 95.18 | -4.82 |
| 23 | 342,355 | 4,318 | 4,660 | 1,213 | 3,447 | 585 | 5,245 | 572 | 95.01 | -4.99 |
| 24 | 287,980 | 5,466 | 5,754 | 1,428 | 4,326 | 688 | 6,442 | 555 | 94.14 | -5.86 |
| 25 | 230,496 | 152,897 | 153,128 | 39,384 | 113,744 | 18,976 | 172,104 | 530 | 93.75 | -6.25 |
| 26 | 456,729 | 8,963 | 9,420 | 2,308 | 7,112 | 1,112 | 10,532 | 553 | 93.99 | -6.01 |
| 27 | 683,995 | 9,110 | 9,794 | 2,206 | 7,588 | 1,063 | 10,856 | 561 | 93.52 | -6.48 |
| 28 | 141,904 | 1,474 | 1,616 | 355 | 1,261 | 171 | 1,787 | 571 | 93.57 | -6.43 |
| 29 | 488,345 | 7,926 | 8,414 | 1,554 | 6,860 | 749 | 9,163 | 544 | 91.69 | -8.31 |
| 30 | 243,705 | 3,831 | 4,075 | 661 | 3,414 | 319 | 4,393 | 540 | 90.81 | -9.19 |
| 31 | 321,100 | 4,291 | 4,612 | 728 | 3,884 | 351 | 4,963 | 544 | 90.78 | -9.22 |
| 32 | 162,030 | 3,375 | 3,537 | 557 | 2,981 | 268 | 3,806 | 531 | 90.40 | -9.60 |
| Totals | 17,230,840 | 658,223 | 675,453 | 272,136 | 403,316 | 131,120 | 806,573 | | | |
| Average Weighted Deviation | | | | | | | | | | 5.03 |

FIGURE 10-16. MODEL VII-A REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

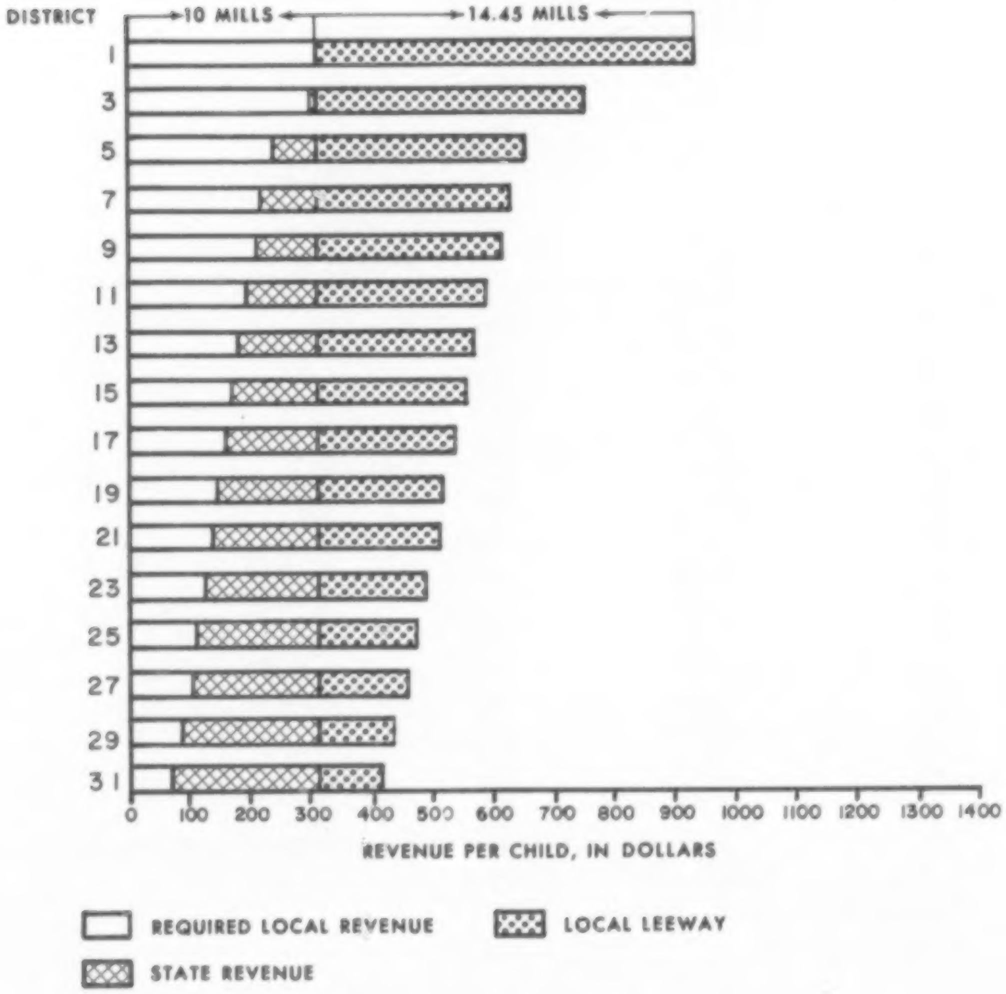


## TABLE 10-21—MODEL VII-B

### MINIMUM FOUNDATION PROGRAM ALLOCATION FOR TRANSPORTATION
### ALLOCATION OF $306.2128 PER WADM 10 MILL LEVY CHARGEBACK 14.452 MILL LEVY LOCAL TAX LEEWAY 25% OF REVENUE FROM STATE SOURCES AND 75% OF RESERVE FROM LOCAL SOURCES

| | | | | State Appropriations | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *District* | *Amt Alloc for Trans in Dollars* | *$306.2128 Amt Alloc Per WADM in Thousands of Dollars* | *Total Found Program in Thousands of Dollars* | *10 Mills × Equal Val in Thousands of Dollars* | *Total State Appropriation in Thousands of Dollars* | *Local Revenue 14.452 Mills × Equal Val in Thousands of Dollars* | *Total Revenue in Thousands of Dollars* | *Total Revenue Per Pupil in WADM in Dollars* | *Ratio of Dist Revenue to Complete Equal Revenue in %* | *Deviation From 100% Equalized* |
| 1 | 28,140 | 5,492 | 5,520 | 7,714 | 0 | 11,148 | 18,861 | 1,052 | 185.80 | 85.80 |
| 2 | 0 | 4,178 | 4,178 | 5,604 | 0 | 8,099 | 13,703 | 1,004 | 177.93 | 77.93 |
| 3 | 129,600 | 12,945 | 13,074 | 12,866 | 208 | 18,594 | 31,669 | 749 | 132.00 | 32.00 |
| 4 | 2,025,199 | 49,025 | 51,050 | 46,243 | 4,807 | 66,831 | 117,881 | 736 | 127.58 | 27.58 |
| 5 | 156,585 | 2,352 | 2,509 | 1,811 | 698 | 2,617 | 5,126 | 667 | 114.09 | 14.09 |
| 6 | 217,838 | 4,049 | 4,267 | 2,933 | 1,334 | 4239 | 8,506 | 643 | 110.73 | 10.73 |
| 7 | 631,659 | 6,036 | 6,668 | 4,298 | 2,370 | 6,211 | 12,879 | 653 | 109.53 | 9.53 |
| 8 | 65,285 | 736 | 801 | 520 | 282 | 751 | 1,553 | 646 | 109.16 | 9.16 |
| 9 | 344,760 | 3,305 | 3,649 | 2,268 | 1,382 | 3,278 | 6,927 | 642 | 107.62 | 7.62 |
| 10 | 2,275,609 | 54,211 | 56,487 | 35,868 | 20,618 | 51,837 | 108,324 | 612 | 105.98 | 5.98 |
| 11 | 89,440 | 1,246 | 1,336 | 782 | 554 | 1,130 | 2,466 | 606 | 103.31 | 3.31 |
| 12 | 104,762 | 1,887 | 1,992 | 1,184 | 809 | 1,711 | 3,703 | 601 | 103.31 | 3.31 |
| 13 | 140,800 | 1,842 | 1,982 | 1,075 | 907 | 1,554 | 3,537 | 588 | 100.02 | .029 |
| 14 | 2,227,033 | 64,114 | 66,341 | 37,151 | 29,191 | 53,690 | 120,031 | 573 | 99.68 | − .32 |
| 15 | 283,465 | 2,216 | 2,500 | 1,220 | 1,280 | 1,764 | 4,263 | 589 | 97.58 | − 2.42 |
| 16 | 632,443 | 6,799 | 7,431 | 3,486 | 3,945 | 5,039 | 12,470 | 562 | 94.72 | − 5.28 |
| 17 | 1,649,358 | 29,704 | 31,354 | 15,130 | 16,224 | 21,865 | 53,219 | 549 | 94.35 | − 5.65 |
| 18 | 418,744 | 9,229 | 9,648 | 4,582 | 5,066 | 6,622 | 16,270 | 540 | 93.34 | − 6.66 |
| 19 | 879,995 | 11,956 | 12,836 | 5,554 | 7,281 | 8,027 | 20,863 | 534 | 91.03 | − 8.97 |
| 20 | 522,555 | 6,400 | 6,923 | 2,921 | 4,002 | 4,221 | 11,144 | 533 | 90.44 | − 9.56 |
| 21 | 654,440 | 10,873 | 11,527 | 4,956 | 6,571 | 7,163 | 18,690 | 526 | 90.30 | − 9.70 |
| 22 | 394,525 | 8,426 | 8,820 | 3,419 | 5,402 | 4,941 | 13,761 | 500 | 86.40 | −13.60 |
| 23 | 342,355 | 2,809 | 3,151 | 1,103 | 2,048 | 1,594 | 4,745 | 517 | 85.96 | −14.04 |
| 24 | 287,980 | 3,556 | 3,844 | 1,298 | 2,545 | 1,876 | 5,720 | 493 | 83.59 | −16.41 |
| 25 | 230,496 | 99,467 | 99,697 | 35,804 | 63,893 | 51,743 | 151,440 | 466 | 82.49 | −17.51 |
| 26 | 456,729 | 5,831 | 6,288 | 2,098 | 4,189 | 3,033 | 9,320 | 489 | 83.18 | −16.82 |
| 27 | 683,995 | 5,926 | 6,610 | 2,005 | 4,605 | 2,898 | 9,508 | 491 | 81.91 | −18.09 |
| 28 | 141,904 | 959 | 1,101 | 322 | 778 | 466 | 1,567 | 500 | 82.05 | −17.95 |
| 29 | 488,345 | 5,156 | 5,644 | 1,412 | 4,232 | 2,041 | 7,685 | 456 | 76.91 | −23.09 |
| 30 | 243,705 | 2,492 | 2,736 | 601 | 2,135 | 869 | 3,605 | 443 | 74.51 | −25.49 |
| 31 | 321,100 | 2,791 | 3,113 | 662 | 2,450 | 957 | 4,070 | 446 | 74.44 | −25.56 |
| 32 | 162,030 | 2,196 | 2,358 | 506 | 1,852 | 732 | 3,089 | 431 | 73.38 | −26.62 |
| Totals | 17,230,840 | 428,202 | 445,433 | 247,397 | 201,658 | 357,537 | 806,590 | —— | —— | —— |
| Average Weighted Deviation — — — | — — | — — | — — | — — | — — | — — | — — | — — | — — | 14.29 |

FIGURE 10-17. MODEL VII-B REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)

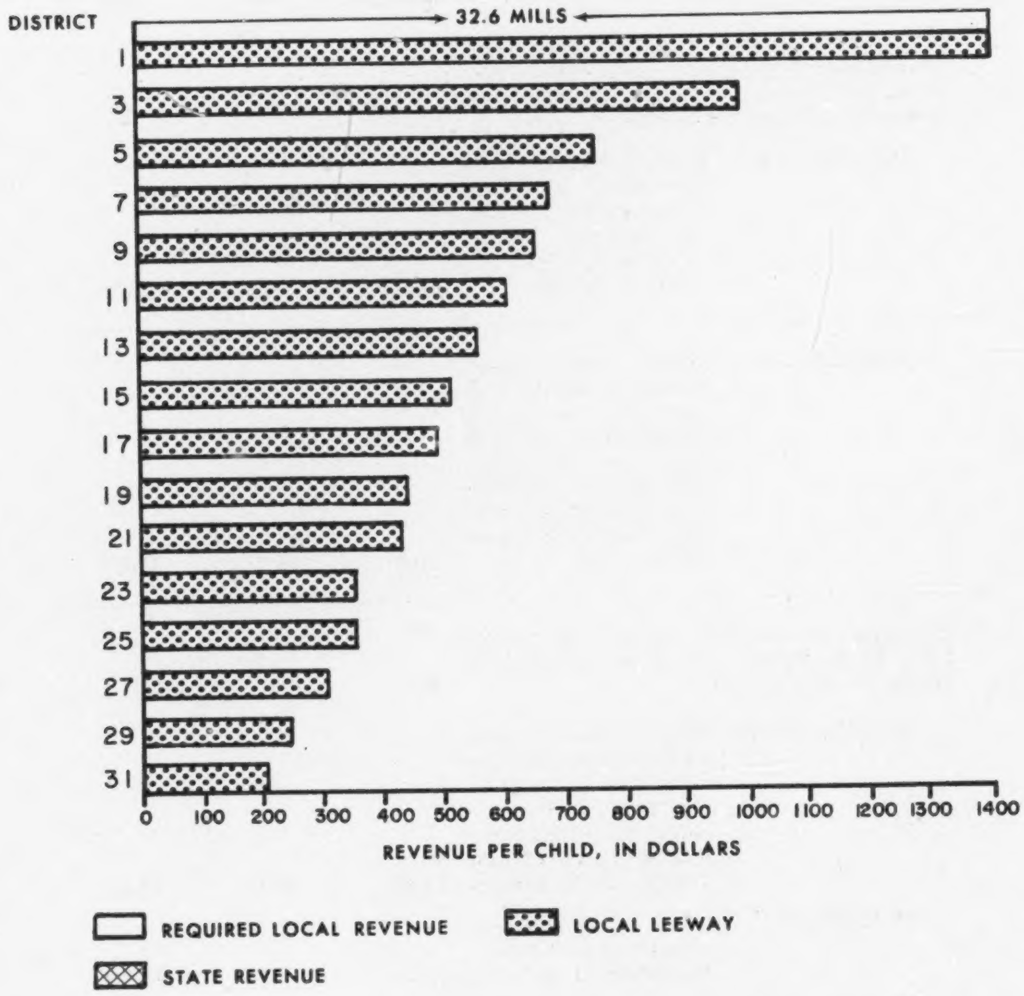


### TABLE 10-22—MODEL VIII

### TOTAL LOCAL FUNDING OF REVENUE TOTALING $806,571,200 32.6024 LOCAL MILL LEVY AUTHORIZED FOR ALL DISTRICTS

| *District* | *Local Rev 32.6024 Mills × Equal Val in Thousands of Dollars* | *Revenue Per Pupil in WADM in Dollars* | *Ratio of Dist Revenue to Comp Equal Revenue in %* | *Deviation From 100% Equalized* |
|---|---|---|---|---|
| 1 | 25,148 | 1,402 | 247.73 | 147.73 |
| 2 | 18,271 | 1,339 | 237.23 | 137.23 |
| 3 | 41,947 | 992 | 174.84 | 74.84 |
| 4 | 150,764 | 942 | 163.17 | 63.17 |
| 5 | 5,903 | 768 | 131.40 | 31.40 |
| 6 | 9,563 | 723 | 124.49 | 24.49 |
| 7 | 14,012 | 711 | 119.17 | 19.17 |
| 8 | 1,695 | 705 | 119.15 | 19.15 |
| 9 | 7,394 | 685 | 114.87 | 14.88 |
| 10 | 116,940 | 661 | 114.41 | 14.41 |
| 11 | 2,549 | 626 | 106.81 | 6.81 |
| 12 | 3,859 | 626 | 107.66 | 7.66 |
| 13 | 3,505 | 583 | 99.15 | – .85 |
| 14 | 121,120 | 578 | 100.59 | .59 |
| 15 | 3,978 | 550 | 91.06 | – 8.94 |
| 16 | 11,367 | 512 | 86.34 | –13.66 |
| 17 | 49,326 | 508 | 87.45 | –12.55 |
| 18 | 14,938 | 496 | 85.70 | –14.30 |
| 19 | 18,109 | 464 | 79.01 | –20.99 |
| 20 | 9,522 | 456 | 77.28 | –22.72 |
| 21 | 16,158 | 455 | 78.07 | –21.93 |
| 22 | 11,146 | 405 | 69.98 | –30.02 |
| 23 | 3,596 | 392 | 65.14 | –34.85 |
| 24 | 4,233 | 365 | 61.86 | –38.14 |
| 25 | 116,728 | 359 | 63.58 | –36.42 |
| 26 | 6,841 | 359 | 61.06 | –38.95 |
| 27 | 6,537 | 338 | 56.32 | –43.68 |
| 28 | 1,051 | 336 | 55.06 | –44.94 |
| 29 | 4,605 | 273 | 46.08 | –53.92 |
| 30 | 1,960 | 241 | 40.50 | –59.50 |
| 31 | 2,159 | 237 | 39.50 | –60.51 |
| 32 | 1,650 | 230 | 39.20 | –60.60 |
| Totals | 806,571 | ——— | ——— | ——— |
| Average Weighted Deviation — — — — — — — — | | | | 30.98 |

FIGURE 10-18. MODEL VIII REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)



### TABLE 10-23

### Rating of Models

| *Models* | *Average Deviation From Full Equalization* | *Score On NEFP Scale* | *Tax Progressivity Score* |
|---|---|---|---|
| 1. *Flat grant models* with the same total revenue and the same proportion from state and local sources with different methods of apportionment | | | |
| MODEL I-A — Flat grant of $500 per pupil in ADM, unweighted pupils, no aid for transportation, local tax rate 12 mills[a] | 15.42 | 4.3 | 18.10 |
| MODEL I-B — Same total state funds as Model I-A but state funds are distributed on the basis of weighted pupils, and need for transportation and same local funds as Model I-A. | 11.40 | 5.1 | 18.10 |
| 2. *Equalization models* with the same total state funds and same total local funds as Model I-A | | | |
| MODEL II-A — Strayer-Haig equalization formula, unweighted pupils, transportation allotment, 5 mills required local effort, 7 mills local leeway | 11.63 | 5.2 | 18.10 |
| MODEL II-B — Same as Model I-A except pupils are weighted | 6.65 | 6.3 | 18.10 |
| MODEL II-C — Same as Model II-B except required local effort is 10 mills and local leeway 2 mills | 1.90 | 7.6 | 18.10 |
| MODEL II-D — Complete equalization, same as Model II-A except required local effort is 12 mills and there is no local leeway | 0. | 8.4 | 18.10 |

TABLE 10-23—RATING OF MODELS,—(CONTINUED)

| *Models* | | *Average Deviation From Full Equalization* | *Score On NEFP Scale* | *Tax Progressivity Score* |
|---|---|---|---|---|
| 3. *Percentage equalizing formula* | | | | |
| MODEL III | Compared with Model II-B | 6.65 | 6.3 | 18.10 |
| 4. *Flat Grant* models with the same total revenue as in Model I-A but increasing the proportion of revenues from state sources and decreasing local revenue | | | | |
| MODEL IV-A | Apportionment method the same as Model I-B, but limit local revenue to 7 mills and increase state appropriation the equivalent of 5 mills | 6.65 | 6.4 | 19.03 |
| MODEL IV-B | Same as IV-A but limit local revenues to 4 mills and increase state appropriation the equivalent of 8 mills | 3.80 | 7.2 | 19.69 |
| MODEL IV-C | Complete equalization, apportionment method same as IV-A except no local millage and state appropriation increased the equivalent of 15 mills | 0. | 8.4 | 20.49 |
| 5. *Equalization models* with the same total revenue as Model I-A but increasing the proportion of revenue from state sources and decreasing local revenue | | | | |
| MODEL V-A | Apportionment according to method of II-B, 7 mill limit on local taxes, 4 mill required effort, 3 mill leeway increase state appropriation the equivalent of 5 mills | 2.85 | 7.1 | 19.03 |

TABLE 10-23—RATING OF MODELS—(CONTINUED)

| *Models* | | *Average Deviation From Full Equalization* | *Score On NEFP Scale* | *Tax Progressivity Score* |
|---|---|---|---|---|
| MODEL V-B | Same as V-A except 4 mill limit on local taxes, 2 mill required effort, 2 mill local leeway and increase state funds the equivalent of 8 mills | 1.90 | 7.5 | 19.69 |
| MODEL V-C | Complete equalization, same as V-A except no local taxes and state appropriation increased the equivlent of 12 mills | 0. | 8.4 | 20.49 |
| 6. *Flat grant* models with the same total revenue as I-A but increasing the proportion of revenue from local sources and decreasing state revenue | | | | |
| MODEL VI-A | Apportionment method the same as I-B, 50% of revenue from state resources and 50% local revenue, local levy 16.3 mills | 15.48 | 4.1 | 17.25 |
| MODEL VI-B | Same as VI-A except state revenue 25%, local revenue 75% and local tax rate 24.452 mills | 23.23 | 2.4 | 15.62 |
| 7. *Equalization models* with the same total revenue as I-A but increasing the revenue from local sources and decreasing state revenue | | | | |
| MODEL VII-A | 50% of revenue from state sources, 50% from local sources, apportionment according to method II-B, except total local millage of 16.3 mills, 11 mills required effort and local leeway of 5.3 mills | 5.03 | 7.2 | 17.25 |

TABLE 10-23—RATING OF MODELS,—(CONTINUED)

| *Models* | | *Average Deviation From Full Equalization* | *Score On NEFP Scale* | *Tax Progressivity Score* |
|---|---|---|---|---|
| MODEL VII-B | Same as VII-A except state revenue 25%, local revenue 75%, local millage 24.452, required local effort of 10 mills and local leeway of 14.452 mills | 14.29 | 5.1 | 15.62 |
| 8. *Complete local support* model | | | | |
| MODEL VIII | Same total revenue as Model I-A, all local revenue, local tax rate of 32.6024 mills | 30.98 | 1.0 | 14.00 |

[a] In all of these models, the assumption is made that all districts levy the legal maximum tax rate because that rate represents the local revenue potential.

## The Incentive Grant Model

As pointed out above, an incentive grant can be added to the percentage equalizing or state aid ratio model and the Strayer-Haig model. It is difficult to examine the impact of the incentive grant model by all of the same methods used to examine the other models presented above. However, it is possible to compare an incentive grant model with an equalization model with a fixed level foundation program by graphical methods if assumptions are made with respect to variations among districts in local tax effort.

The incentive grant model is compared with Equalization Model II-C below. Table 10-24 shows the revenue per weighted pupil in average daily membership (excluding transportation) from: (a) the required local levy, (b) the state and (c) from local leeway taxes for Model II-C. The data are shown only for one-half of the districts in the prototype state, randomly selected in order of wealth in order to simplify the chart developed from this table. Data for transportation are also excluded in order to simplify the two models, the assumption being made that the allowable costs of transportation would be funded by the state in both models.

## TABLE 10-24

### REVENUE PER WEIGHTED PUPIL IN ADM FROM REQUIRED LOCAL EFFORT, FROM THE STATE AND FROM LOCAL LEEWAY LEVY UNDER MODEL II-C, TABLE 10-9 (EXCLUDING REVENUE FOR TRANSPORTATION) FOR SAMPLE DISTRICTS FROM THE PROTOTYPE STATE

| *District* | *Revenue Per Weighted Pupil From Required Local Effort*[a] | *Revenue Per Weighted Pupil From The State*[b] | *Revenue Per Pupil From Local Leeway Taxes*[c] | *Total Revenue Per Pupil*[d] |
|---|---|---|---|---|
| *Col. 1* | *Col. 2* | *Col. 3* | *Col. 4* | *Col. 5* |
| 1 | 430. | 99. | 86. | 615. |
| 3 | 304. | 225. | 61. | 590. |
| 5 | 236. | 293. | 47. | 576. |
| 7 | 218. | 311. | 44. | 573. |
| 9 | 210. | 319. | 42. | 571. |
| 11 | 192. | 337. | 38. | 567. |
| 13 | 179. | 350. | 36. | 565. |
| 15 | 169. | 360. | 34. | 563. |
| 17 | 156. | 373. | 31. | 560. |
| 19 | 142. | 388. | 28. | 558. |
| 21 | 140. | 390. | 28. | 558. |
| 23 | 120. | 409. | 24. | 553. |
| 25 | 110. | 419. | 22. | 551. |
| 27 | 104. | 425. | 21. | 550. |
| 29 | 84. | 445. | 17. | 546. |
| 31 | 73. | 456. | 15. | 544. |

[a] Column 5 of Table 10-9 ÷ Column 3 of Table 10-4.

[b] Column 6 of Table 10-9 − Column 2 of Table 10-9 ÷ Column 3 of Table 10-4.

[c] Column 7 of Table 10-9 ÷ Column 3 of Table 10-4.

[d] The sum of Columns 2 + 3 + 4 of Table 10-24.

Table 10-25 shows the computation of the funds available to the same selected sixteen districts under an incentive grant formula with the following assumptions:

1. The same weighted pupils are used in the incentive grant model as in Model II-C.
2. A mandated minimum levy of 10 mills is required for the incentive grant model and districts have the option of levying up to 17 mills.
3. The same percentage of state funds for the district of average wealth is provided for in the incentive grant formula as in Model II-C for the same mandated local effort.
4. The sixteen districts levy the tax rates indicated.

Table 10-26 shows the revenue per weighted pupil in average daily membership for the sixteen districts from: (1) local taxes and (2) the state for the incentive grant model.

TABLE 10-25

THE PERCENTAGE EQUALIZING OR STATE AID RATIO MODEL FOR SELECTED DISTRICTS FROM THE PROTOTYPE STATE WITH THE PERCENT OF STATE AID PROVIDED FOR THE DISTRICT OF AVERAGE WEALTH EQUIVALENT TO THAT PROVIDED IN MODEL II-C (EXCLUDING REVENUE FOR TRANSPORTATION)

| *District* | *Number of Mills of Local Taxes Levied* | *Local Tax Revenue*[a] | *State Aid Ratio*[b] | *State Appropriation*[c] | *Total Revenue*[d] |
|---|---|---|---|---|---|
| *Col. 1* | *Col. 2* | *Col. 3* | *Col. 4* | *Col. 5* | *Col. 6* |
| 1 | 12 | 9,256,347. | .2301–1 | 2,129,885. | 11,386,232. |
| 3 | 17 | 21,872,591. | .7383–1 | 16,148,534. | 38,021,125. |
| 5 | 15 | 2,716,048. | 1.2446–1 | 3,380,393. | 6,096,441. |
| 7 | 14 | 6,017,066. | 1.4226–1 | 8,583,946. | 14,601,012. |
| 9 | 16 | 3,628,637. | 1.5177–1 | 5,507,182. | 9,135,819. |
| 11 | 16 | 1,251,148. | 1.7537–1 | 2,194,138. | 3,445,286. |
| 13 | 13 | 1,397,720. | 1.9594–1 | 2,738,693. | 4,136,413. |
| 15 | 14 | 1,708,349. | 2.1383–1 | 3,652,963. | 5,361,312. |
| 17 | 17 | 25,720,337. | 2.3922–1 | 61,528,190. | 87,248,527. |
| 19 | 12 | 6,665,308. | 2.7191–1 | 18,123,639. | 24,788,947. |
| 21 | 15 | 7,434,142. | 2.7906–1 | 20,745,717. | 28,179,859. |
| 23 | 13 | 1,434,003. | 3.3997–1 | 4,875,180. | 6,309,183. |
| 25 | 17 | 60,866,171. | 3.8001–1 | 231,297,536. | 292,163,707. |
| 27 | 14 | 2,807,209. | 4.1065–1 | 11,527,804. | 14,335,013. |
| 29 | 15 | 2,118,538. | 5.3077–1 | 11,244,564. | 13,363,102. |
| 31 | 12 | 794,627. | 6.2836–1 | 4,993,118. | 5,787,745. |

[a] Column 2 of Table 10-26 × Column 4 of Table 10-4.

[b] (Column 6 of Table 10-9 – Column 2 of Table 10-9) ÷ Column 5 of Table 10-9. Use decimals to 4 places.

[c] Column 3 of Table 10-25 × Column 4 of Table 10-25.

[d] The sum of Columns 3 and 5 of Table 10-25.

Figure 10-5 shows the data for Model II-C and Figure 10-19 for the incentive grant model. The following conclusions can be drawn from a comparison of these two charts:

1. The financial equalization of educational opportunity is disequalized by the incentive grant model as compared with Model II-C because under the incentive grant model, the level of the program guaranteed by the state in a district depends upon its local tax effort rather than variations in educational need as compared with other districts.
2. Both local tax revenue and state appropriations are increased under the incentive grant model.

The incentive grant model was developed some years ago primarily to stimulate innovation and the improvement of the quality of education. It had been observed in some states that there was a tendency for the public to become satisfied with a fixed

TABLE 10-26

**REVENUE PER WEIGHTED PUPIL UNDER THE INCENTIVE GRANT MODEL FROM LOCAL SOURCES AND FROM THE STATE FOR SELECTED DISTRICTS FROM THE PROTOTYPE STATE (EXCLUDING REVENUE FOR TRANSPORTATION)**

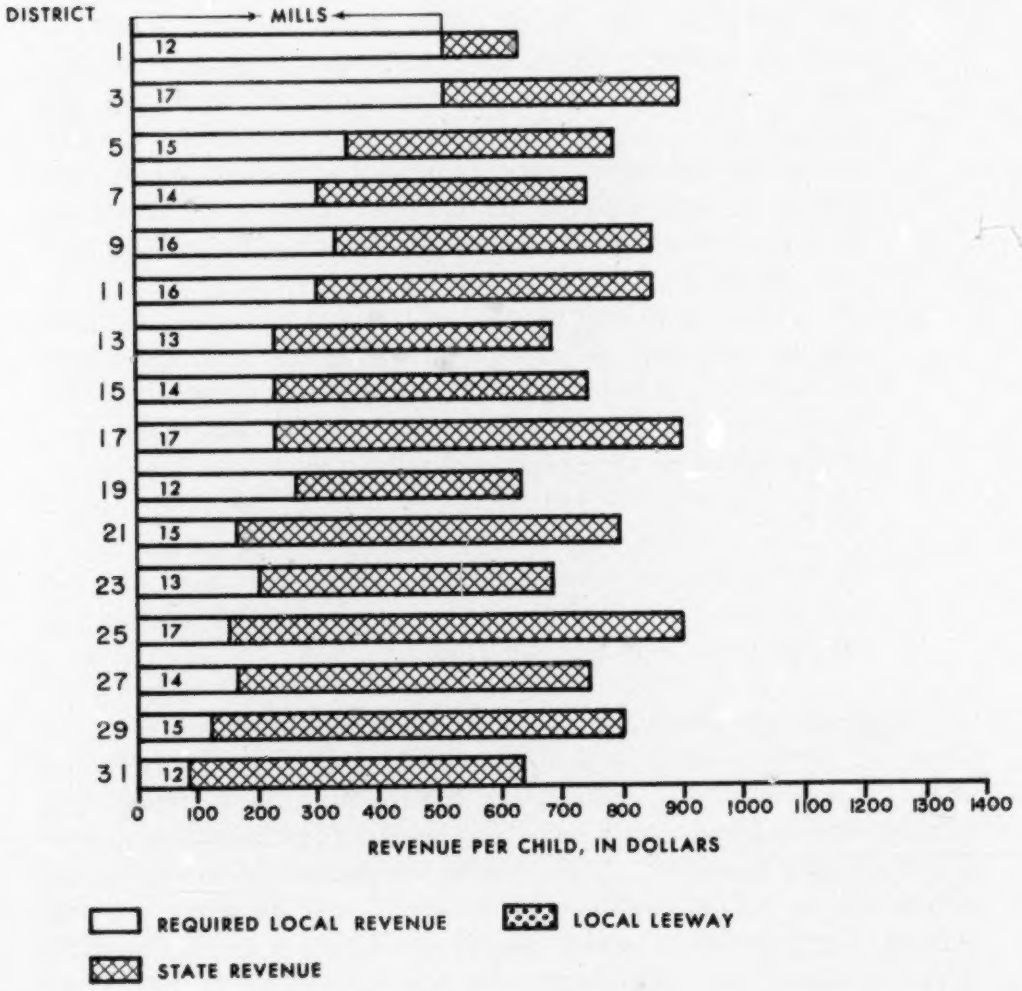
| *District* | *Revenue Per Weighted Pupil From Local Taxes*[a] | *Revenue Per Weighted Pupil From the State*[b] | *Total Revenue Per Weighted Pupil*[c] |
|---|---|---|---|
| *Col. 1* | *Col. 2* | *Col. 3* | *Col. 4* |
| 1 | 516. | 119. | 635. |
| 3 | 517. | 382. | 899. |
| 5 | 354. | 440. | 794. |
| 7 | 305. | 436. | 741. |
| 9 | 336. | 510. | 846. |
| 11 | 307. | 539. | 846. |
| 13 | 232. | 455. | 687. |
| 15 | 236. | 505. | 741. |
| 17 | 265. | 634. | 899. |
| 19 | 171. | 464. | 635. |
| 21 | 210. | 584. | 794. |
| 23 | 156. | 531. | 687. |
| 25 | 187. | 712. | 899. |
| 27 | 145. | 596. | 741. |
| 29 | 126. | 668. | 794. |
| 31 | 87. | 548. | 635. |

[a] Column 3 of Table 10-25 ÷ Column 3 of Table 10-4.
[b] Column 5 of Table 10-26 ÷ Column 3 of Table 10-3.
[c] Total of Columns 2 and 3 of Table 10-26.

level foundation program and it was difficult to change the level of the program. It was theorized that if the state rewarded increases in local effort by state grants that this would stimulate an increased level of school financing. This policy, of course, establishes various foundation program levels within a state depending upon the level of local effort. The incentive grant idea was generally supported by most of the experts on school finance including some of the researchers for the National Educational Finance Project. However, experience with this model and evidence presented in Figures 10-5 and 10-19 raise some serious questions concerning the desirability of the incentive grant model. Following are some of the objections to this model:

1. It tends to disequalize educational opportunity within a state.
2. It stimulates an increase in local property taxes for school support despite the fact that too high a proportion of the school budget is already obtained from property taxes in most states.

FIGURE 10-19. INCENTIVE GRANT MODEL REVENUE PER WEIGHTED PUPIL (EXCLUDING TRANSPORTATION)



3. Although under the incentive grant computed by the state aid ratio method, all districts regardless of wealth, could have the same foundation program level for an equivalent level of effort, there is no assurance that the districts which at present, have the lowest quality of education will make the extra local effort needed. As a matter of fact, the districts which already have a high level of education of the electorate are the districts that place the highest value on education and those districts are the districts that are most likely to make a high local effort. The schools in such districts usually are not in as great a need of improvement as in the districts with a low educational level of the electorate.
4. If no limit is placed on the local taxes for schools which will be matched on the state aid ratio, necessary noneducational functions of local government may be underfinanced in relation to education. This is especially true if the state does not reward local governments for financing local governmental functions. To base the allocation of state funds on the basis of "the more you spend locally, the more you get from the state" seems irrational because it may cause a misallocation of the priorities needed for various governmental functions.

Although the incentive grant model has some desirable purposes, it certainly has some undesirable side effects. It seems that better methods of stimulating innovation and change in the educational program could be developed than the incentive model. For example, the state could provide in its foundation program allotments to school systems for research and development and program improvement which would constitute a more desirable type of incentive. Although adequate financing is necessary for educational improvement, factors other than money such as state and local leadership, long range planning, evaluation of alternative means for achieving desired educational goals, improved district organization, improved internal organization of districts, and other means can be used to improve the quality of education. It is beyond the scope of this volume to discuss these other means. Suffice it to say that it would seem a better policy for improvement of the educational program to utilize factors aimed directly at improvement of the educational program rather than a factor aimed directly at increasing local property taxes for schools. It is true that local property taxes for schools are negligible in some states. In such states it would seem to be better policy for the state to directly mandate the needed increase in local property taxes for schools than to use the carrot approach.

### Negotiated Budgets

It has been suggested that the variation among the districts of a state in educational needs and unit costs are so great that no state formula of apportionment could be developed that would adequately reflect those variations and therefore that each district should negotiate its budget of state funds with a state agency. This is hardly a model. Even if this plan were instituted, the state agency would have to use allocation guidelines similar to a formula in negotiating the budget for a school district or the agency would be subjected to intolerable political pressures. In any event the negotiated budget would give entirely too much power to a state agency. The research conducted by the National Educational Finance Project shows that it is possible to develop reasonably equitable formulas for the allocation of state funds. Therefore, there is no need to risk the many dangers of negotiating budgets.

### State Aid for Non-Public Schools[3]

The National Educational Finance Project did no research on finance models providing state aid for non-public schools for the following reasons:

1. The Project staff considered state aid to non-public schools a political problem rather than a financial problem. If all private schools in the United States were abolished and absorbed in the public schools, it is estimated that school costs would be increased nationally only approximately 10 percent. This is a relatively small increase compared with an increase of 152 percent in public school expenditures between 1960 and 1970. It is true the increase would not be uniform throughout the United States. However, the greatest concentrations of pupils in private schools are generally found in the states of greatest wealth. Those states should be able to finance those extra

costs. It is true that districts within a state vary greatly in the percent of pupils enrolled in non-public schools in the states that have a high percent of pupils enrolled in non-public schools. If there is a wholesale closing of non-public schools in those districts (as has been feared by some) those districts would have critical housing problems. In such states, the state legislature should provide special capital outlay assistance to the districts having a critical housing shortage due to the closing of non-public schools. This special capital outlay aid could be used either to construct new facilities or to purchase suitable facilities from non-public school authorities who no longer need the facilities if they desire to sell them. It would also be sound policy to provide special federal aid on a temporary basis for this purpose. It is not being suggested that there should be wholesale closing of non-public schools, but if it does occur in any school district, financial provisions should be made for an orderly transfer of non-public school pupils to public schools without unduly burdening that district. When the students become public school students, the districts having an influx of non-public school pupils will receive additional state funds for operating purposes on a continuing basis.

2. The United States Supreme Court in June, 1971 ruled that it was unconstitutional to provide tax funds for the direct support of parochial schools. Approximately 90 percent of all of the pupils enrolled in non-public schools are enrolled in parochial schools. Any finance model which provided general aid for parochial schools would be unconstitutional. Therefore, it would be futile to develop such a model.

**Municipal Overburden**

It has been suggested by some that the financial ability of large urban districts as measured by the equalized value of property be reduced appropriately in the states's apportionment formula because of the extra local tax burdens those cities are required to bear. There is no doubt that large core cities have these extra costs as compared with many suburban and rural areas. However, the costs of those cities for public safety, welfare, sewage disposal, control of air and water pollution, transportation and other services are so great that they cannot be substantially met by manipulations of the school apportionment formula. The cities should be provided direct financial aid in accordance with these needs for municipal services and their relative financial ability. Both the federal and state governments should contribute financial aid to the cities for this purpose.

Core cities as a rule have a higher percent of high cost pupils than surrounding suburban districts. It has already been recommended in this chapter, that pupils should be weighted appropriately in order to provide for the extra costs of culturally disadvantaged pupils.

These provisions, if implemented, would solve the problem of municipal overburden without inserting special provisions in the school apportionment formula for that purpose.

### Measures of Local Effort

The measures of local effort in proportion to ability in the equalization models examined in this chapter are based upon millage levies on the equalized value of property because 98 percent of all local school tax revenue is derived from property taxes. It is true that some school boards have the authority to levy a limited amount of local property taxes. The local taxpaying ability of school districts in reality is not their theoretical taxpaying ability, but rather a measure of their accessibility to local tax revenue. If a district only has the authority to levy property taxes then its local taxpaying ability (or effort to support schools) should be measured only in terms of the equalized value of the taxable property in that district. However, if a district has the power to levy local nonproperty taxes, such as payroll taxes, sales taxes, utility taxes, etc., then the yield of such local nonproperty taxes can justly be incorporated in the measure of the taxpaying ability of that district. Since local nonproperty taxes for schools are unimportant in most states, no measures of local taxpaying ability were examined which incorporated ability to pay nonproperty taxes. As pointed out in Chapter 6 of Volume 4 of the National Educational Finance Project entitled *Status and Impact of Educational Finance Programs,* supporting schools by local nonproperty taxes disequalizes school financial support more than local property taxes. The state can levy and collect practically all important types of nonproperty taxes more efficiently than local governments. Since the use of local nonproperty taxes for school support increases inequalities in school support and promotes inefficiency in tax administration, it does not seem wise policy to encourage this practice.

## SUMMARY OF CONCLUSIONS DERIVED FROM THE MODELS TESTED

Following are some conclusions that can be derived from the analyses of the alternative finance models presented in this chapter:

1. State funds distributed by any model tested provide for some financial equalization but some finance models provide more equalization than others. Even the flat grant model provides for some equalization despite the fact that under this model each district, regardless of wealth or necessary variations in unit costs, receives the same amount of state money per pupil or other unit. This is due to the fact that the less wealthy districts receive more state aid per pupil than the revenue per pupil they contribute to the state treasury.
2. The flat grant model by which state funds are apportioned on the basis of a flat amount per pupil unit or other unit which does not take into consideration necessary variations in unit costs or variations in wealth per unit of need of local districts provides the least financial equalization for a given amount of state aid of any of the state-local support models tested.
3. The flat grant model under which necessary cost variations per unit of need are provided for but variations in the per pupil wealth of local districts are ignored provides for more equalization than the flat grant model described in 2 above but it does not equalize financial resources as well as the equalization models providing for cost differentials and variations in wealth.
4. Equalization models under which necessary unit cost differentials are provided for in computing the cost of the educational program equalized and which take into consideration differences in the wealth of local school districts in computing state funds needed by a district are the most

efficient models examined for equalizing financial resources in states which use a state-local revenue model for financing schools.

5. In equalization models the greater the local effort required in proportion to the legal limit of local taxes for schools, the greater the equalization.
6. In equalization models the greater the local tax leeway above the required local tax effort required for the support of the foundation program, the less the equalization.
7. Complete equalization is attained only under full state funding or under an equalization model which requires school districts to contribute the full legal limit of local taxes to the cost of the foundation program.
8. The higher the percent of school revenues provided by the state, the greater the equalization of financial resources under both flat grant and equalization models but there is always more equalization under an equalization model than a flat grant model for any given amount of state funds apportioned.
9. As full state funding is approached (100 percent of school revenue provided by the state) the difference between the equalizing potential of flat grant models and equalization models begins to disappear, assuming that cost differentials are provided for under each model. For example, with 90 percent or more state funding of schools, the differences between flat grant models and equalization models in equalizing financial resources would not be significant but the equalization models would always be slightly superior until full state funding is reached.
10. As the percent of local revenue is increased, the possibility of equalizing financial resources decreases.
11. A complete local support model provides for no equalization whatsoever. In the prototype state under this model, the least wealthy district would have only 1/6 of the resources per pupil available in the most wealthy district.
12. The higher the percent of state funds provided, in relation to local revenue, the greater the progressivity of the tax structure for school support.
13. The higher the percent of federal funds provided in relation to state and local revenues the greater the progres-

sivity of the tax structure for school support. This is due to the fact that federal taxes are on the average more progressive than state taxes and state taxes more progressive than local taxes.

14. Many states can increase the progressivity of state taxes by increasing the proportion of state revenue obtained from relatively progressive taxes.

Which school finance model is the best model? That depends entirely on the values and goals of those making decisions on school fiscal policies. Following are some options:

1. If one believes that educational opportunities should be substantially equalized financially among the districts of a state, but that districts should be left with some local tax leeway for enrichment of the foundation program, an equalization model is the best model. However, the higher the priority one gives to equalization, the more he will prefer the equalization model that provides the most equalization.
2. If one believes that educational opportunities should be completely equalized financially, among the districts of a state, the complete state support model is the preferred model. If the decision of the Supreme Court of California in August, 1971 is upheld by the United States Supreme Court, complete state and federal support of the public schools or complete equalization of local ability by a Strayer-Haig model will be the only legal alternatives. The California Supreme Court ruled that the use of local property taxes to finance schools violated the 14th Amendment to the federal constitution.
3. If one believes that all children regardless of variations in ability, talent, health, physical condition, cultural background, or other conditions which cause variations in educational needs, have a right to the kind of education that meets their individual needs, he will select school finance models which incorporate the programs needed and which provide for necessary cost differentials per unit of need.
4. If one believes that educational opportunity should be substantially equalized among the states he will support a revenue model which provides a substantial percent of

school revenue in general federal aid apportioned in such a manner as to tend to equalize educational opportunities among the states.

5. If one believes that the taxes for the support of the public schools should be relatively progressive rather than regressive, he will prefer revenue models which provide a high percent of school revenue from federal and state sources.
6. If one believes that publicly financed education should tend to remove the barriers between caste and class and provide social mobility, he will oppose any plan of school financing which promotes the segregation of pupils by wealth, race, religion or social class.
7. If one believes that all essential functions of state and local government should be equitably financed in relation to each other, he will oppose any finance model for any function of government, including education, under which either federal or state funds are allocated to local governments on the basis of "the more you spend locally, the more you get from the central government" rather than on the basis of need.
8. If one believes that the educational output per dollar of investment in education should be maximized, he will support finance models that will promote efficient district organization and efficient organizations of school centers within districts.
9. If one believes in a federal system of government, he will support finance models which will not require a decision governing public education to be made at the federal level when it can be made efficiently at the state level, and will not require a decision to be made at the state level when it can be made efficiently at the local level, regardless of the percent of revenue provided by each level of government.
10. If one believes that education is essential to the successful operation of a democratic form of government in a free enterprise society and if he believes that education is essential to the economic growth of the nation and to the fulfillment of the legitimate aspirations of all persons in our society, he will support revenue models sufficiently financed to meet educational needs adequately.

## FOOTNOTES

1. It should not be assumed that the National Educational Finance Project is recommending that 1,800 pupils is the most desirable minimum size of school district. Actually, maximum economy of scale cannot be reached until the minimum size of school district is made much larger. The minimum size of 1,800 was selected because it should be reasonably attainable in all states and because inefficiencies of scale increase rapidly as districts fall below 1,800 in size.

2. Adapted from Edgar L. Morphet and David L. Jesser, eds. *Emerging Designs for Education*, Denver, Col.: Designing Education for the Future, 1968. P. 227. (Republished by Citation Press, Scholastic Magazine, New York, N. Y.)

3. The so-called "voucher plan" was not considered because its constitutionality is in doubt at this writing. Furthermore, if the law prohibited the redeeming of the vouchers by parochial schools and also by private schools which enrolled a lower percent of blacks than the percent of blacks enrolled in public schools of the district in which the private school was located, there would probably be few advocates of the voucher plan.

## APPENDIX A—SOME CHARACTERISTICS OF DISTRICTS OF THE PROTOTYPE STATE

| | *PREDOMINANT TYPE OF DISTRICT* | | | | | | | *RANK PER PUPIL IN WADM* | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | *Independent Cities* | | | | | | | |
| *District Number* | *Rural and Small Town* | *Suburban* | *10,000–25,000* | *25,000–50,000* | *50,000–100,000* | *100,000–300,000* | *300,000* | *Property* | *Income* | *Sales* |
| 1 | | X | | | | | | 1 | 1 | 2 |
| 2 | | X | | | | | | 2 | 2 | 1 |
| 3 | | | | | | X | | 3 | 5 | 4 |
| 4 | | X | | | | | | 4 | 3 | 9 |
| 5 | X | | | | | | | 5 | 9 | 5 |
| 6 | | | | X | | | | 6 | 7 | 7 |
| 7 | | X | | | | | | 7 | 12 | 31 |
| 8 | X | | | | | | | 8 | 14 | 22 |
| 9 | X | | | | | | | 9 | 28 | 14 |
| 10 | | X | | | | | | 10 | 4 | 13 |
| 11 | | | X | | | | | 11 | 6 | 18 |
| 12 | | | X | | | | | 12 | 11 | 6 |
| 13 | X | | | | | | | 13 | 18 | 16 |
| 14 | | X | | | | | | 14 | 8 | 15 |
| 15 | X | | | | | | | 15 | 31 | 30 |
| 16 | X | | | | | | | 16 | 10 | 21 |
| 17 | | X | | | | | | 17 | 13 | 17 |
| 18 | X | | | | | | | 18 | 24 | 19 |
| 19 | X | | | | | | | 19 | 20 | 24 |
| 20 | X | | | | | | | 20 | 23 | 8 |
| 21 | X | | | | | | | 21 | 17 | 10 |
| 22 | | | | X | | | | 22 | 15 | 12 |
| 23 | X | | | | | | | 23 | 30 | 32 |
| 24 | X | | | | | | | 24 | 25 | 25 |
| 25 | | | | | | | X | 25 | 16 | 11 |
| 26 | X | | | | | | | 26 | 22 | 20 |
| 27 | X | | | | | | | 27 | 26 | 23 |
| 28 | | X | | | | | | 28 | 19 | 3 |
| 29 | X | | | | | | | 29 | 21 | 26 |
| 30 | X | | | | | | | 30 | 27 | 28 |
| 31 | X | | | | | | | 31 | 32 | 27 |
| 32 | X | | | | | | | 32 | 29 | 29 |

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# APPENDIX B

## DESCRIPTION OF DISTRICTS IN THE PROTOTYPE STATE

**District No. 1**

This suburban municipality immediately adjoins the state's largest city. It is traversed by two railroads, one state highway and one interstate highway. The district is surrounded on all sides by other large suburban communities. The population of this suburb ranks it among the largest in the state. The backbone of the economy is a very large heavy manufacturing plant, and there also are several small machine shops in the municipality. Much of the housing in the eastern portion of the district was built during the early 1900's; that in the western portion is of post World War II vintage.

**District No. 2**

This suburban district adjoins the state's largest city. It is one of the ten largest communities in the state. It is traversed by one railroad, one interstate highway and several state highways. The district is predominantly residential in character, but does have one large manufacturing plant near its southern boundary. One of the state's largest shopping centers is located in this district and a substantial concentration of light industry has developed in the western portion of the district in recent years. Although originally a high income residential suburb, annexation and land development since World War II have produced a much broader tax base and a more heterogeneous population.

**District No. 3**

This city, the second largest in the state, is located in the south central section. Six U. S. highways, three state highways and two interstate highways enter the city. Transportation facilities also include three railroads, three bus lines, and five airlines. The city has twelve banks and five savings and loans institutions. The area has several large shopping centers and is the retail center for a nine-county area. There are two daily newspapers with a combined circulation of 117,778. Industry is quite diversified, with only two or three large manufacturing plants. However, a large state university, several large insurance companies, and a number of state office buildings are located in the district and provide employment for many of the residents.

### District No. 4

This suburban and rural district in the southern portion of the state is one of the most attractive residential areas in the nation. The southern portion of the district consists of a cluster of unincorporated communities adjacent to a large city in an adjoining state. The northern part of the district is still agricultural with an emphasis on dairying, livestock, and nurseries. Rural land values are the second highest in the state. Significant heavy industry is not found in the district, but scientific research and light industry are important to the economy. In addition, governmental installations also provide extensive employment opportunities. On most economic measures related to income and business activity, the district ranks among the top three districts in the state. Transportation services are provided by two interstates, three federal highways, three railroads, and a nearby large commercial airport. Higher education opportunities are provided through a local community college and numerous colleges in the city located in the adjoining state.

### District No. 5

This rural district is located in the east central portion of the state, but is relatively inaccessible except from the north and east because of natural geographic conditions. Some portions of the district are isolated with resulting transportation problems, but over 75 percent of the land is arable. Agriculture production and food processing provide the principal employment opportunities. The economy is also enhanced by resort and vacation areas in the western portion of the district. A study of economic measures reveals that the district ranks at about the median on most measures. One federal highway, one railroad, and one airport with charter service provide the available transportation. Higher educational opportunities are limited to one private two year liberal arts college and a two year community college in an adjoining county.

**District No. 6**

This city is located in the west central portion of the state on two U. S. highways and two state highways. The city serves as the hub and trading center of a large agricultural area, the nearest large city being located nearly 100 miles away. The area is served by three railroads, five bus lines, and one airline. The largest single employer is a branch plant of a major tire company, but there are several other good-sized firms in diverse fields. The city has three banks and one savings and loan institution. The estimated 7,900 wage earners receive an average weekly pay of $147.00. Newspapers with a combined circulation of 36,403 are published in the city.

**District No. 7**

A part of the standard metropolitan area of the largest city in the state, this suburban and rural district has a land contour which varies from gently to strongly rolling. Land value is high, and dairying and livestock are the most profitable agricultural activities. The forest area is relatively large, but not commercially productive. Manufacturing industry is relatively small, but two research laboratories have been added recently and an electrical appliance firm is making plans to open production facilities employing over 4,000 employees. A study of economic measures indicates that the area ranks in the upper third in terms of income, but near the median on other measures. Two interstates, three federal highways, one railroad, and a major airport provide transportation services. A small community college provides the only higher educational opportunities available in the district, but a variety of higher educational institutions are located in the nearby city.

**District No. 8**

This small town is the service center for a large rural area. It is located approximately 50 miles from a medium-sized metropolitan center. The town is served by two railroads and one airline. The area's largest employer is a manufacturer of heavy trucks and construction equipment. More important in the economy, however, are the dairy farms and the large vegetable farms surrounding the area. The district receives daily newspapers from outside the area and has its own weekly newspapers with a circulation of 2,756.

### District No. 9

This sparsely populated rural district located in the southeastern portion of the state is only accessible from the north and west because of natural geographic conditions. Food production and agriculturally related activities constitute the principal sources of income and employment, with some additional activity related to resort and recreational attractions. On economic measures related to income the district ranks among the lowest three; however, on measures relating to business activity, the district ranks near the median. Three federal highways and one railroad provide transportation services. No higher education institutions are located in the district.

### District No. 10

This largely suburban district is a part of the standard metropolitan area of the state's largest city. The outlying portions contain prosperous farms in which land values are the highest in the state. In the hilly central portion of the district large estates preserve some of the traditional customs of affluent country life. The district ranks either second or third on most of the major economic measures. One single heavy industrial plant employs over 20 percent of the total work force of the district, but over 200 other firms are also located in the district. Available transportation includes four interstates, three federal highways, four railroads, and a major airport. Two small liberal arts colleges and a state college are located in the district.

### District No. 11

This suburban district is part of the standard metropolitan area of the state's largest city. It is located 10 miles southwest of the city. The area is served by one railroad and one major highway. Ten years ago, dairying and truck farms were the most prominent elements in the economy. The area has suburbanized rapidly, however, and now it is primarily a "bedroom" suburb. Shopping centers, small retail stores and personal services predominate in the local economy. The area is served by a local weekly newspaper as well as two metropolitan daily papers.

**District No. 12**

This city is located near the center of the state. General farming and dairying are important contributors to the economy of the area. In addition, several important manufacturing firms are located in or near the city which is also well known for its medical clinic. There are three railroads, two bus lines and one local airline serving the city. The city has three major financial institutions—two banks and one savings and loan association. The local newspaper has a circulation of 13,131. The weekly salaries of local employees range from $100 to $170; the mean is $130.

**District No. 13**

A rural district located in east central portion of the state, District No. 13 is a highly developed agricultural area with the largest farms in the state. Disposable agricultural products are about equally divided between crops and livestock. The chief industry is food processing. The economic base is further supplemented by a cluster of attractive summer resorts in the western portion of the district. However, on most economic measures the district ranks in the lower third. Two federal highways and one railroad provide transportation services. The only higher education institution in the district is a small liberal arts college.

**District No. 14**

This suburban and rural district is located in the south central portion of the state. The northern portion of the district is still mainly agricultural, but the southern portion which adjoins a large city in an adjacent state is densely populated and largely residential. A single cash crop dominates the agricultural economy and the district ranks first in mining and quarrying. On virtually all economic measures, except those related to heavy industry, the district ranks either second, third, or fourth in the state. Transportation services are provided by three interstates, three federal highways, two railroads, and a nearby large commercial airport. Higher educational opportunities are available through the state university and a state college located in the district.

**District No. 15**

This sparsely populated district located in the eastern part of the state has an economy largely based upon agriculture, food processing, and summer tourist activities. On virtually all economic measures the district ranks in the lower third. One federal highway and one railroad provide the principal transportation services. The only higher educational opportunities available in the district are provided through a small two-year community college.

**District No. 16**

This rural district is second in percentage of area in farm land and fourth in cash income from this source. In this rich agricultural area livestock and dairying account for over 70 percent of the farm products sold. Several small and stable manufacturing establishments also enhance the economic base of the district. On most economic measures the district ranks near the top third. Two federal highways and three railroads provide direct transportation services. One relatively small private college is located in the district.

**District No. 17**

District No. 17, a suburban-rural district with a city of 28,000, is a part of the standard metropolitan area of the state's largest city. With a rank of fourth in the number employed in manufacturing, the district has a consistent rank in the top ten districts in the state by most economic measures. Industrial plants and a large airport are located in the northern portion of the district which adjoins the state's largest city; farming is largely centered in the southern portion with some fishing and resort activity in the eastern portion of the district. Available transportation includes two interstate highways, two federal highways, two railroads, and an international airport served by ten major airlines. Two medium sized colleges have campuses in the district.

**District No. 18**

This district located in the far western portion of the state has the largest land area of any in the state. Slightly less than one fourth of the total area is mountainous; the remainder is fertile farmland. Farm productivity is high; consistently, the district ranks either first or second in the value of farm products sold. Manufacturing is diversified, and the general economy is strong. The district ranks in the upper half on all economic measures and in the upper third on most. One interstate, three federal highways, three railroads, and a small municipal airport provide transportation services. Three private liberal arts colleges and one community college provide higher educational opportunities.

### District No. 19

This largely rural district is located in the northeastern portion of the state; over four-fifths of the land area lies on a plateau which is partly rolling and partly hilly. The remainder of the land area lies on a flat flood plain. The rich soil supports diversified agriculture with dairy and livestock products having the highest commercial value. Some manufacturing firms are located in the district, but a large number of residents commute to jobs in the nearby large city. Two large government installations located in the district are important elements in the total economy. On most economic measures the district ranks near the upper third. Available transportation includes one interstate, two federal highways, two railroads, and two small local airports. Higher education opportunities are available through a local community college with an enrollment of approximately 1500 students.

### District No. 20

Located in the southern portion of the state, this rural district with its flat, fertile, and productive land leads the state in the value of farm products sold. However, industry offers the greatest number of employment opportunities with firms for food processing, clothing manufacture, and transportation equipment. The largest city in the district is the most important commercial center in that portion of the state. The district ranks between the median and the top third on virtually all economic measures. Two federal highways, one railroad, and a small airport with scheduled service provide transportation services to the district. Higher educational opportunities are provided through a state college with an extensive program.

### District No. 21

Crossed by two of the most picturesque mountain valleys in the nation, this rural district in the north central part of the state also contains the state's sixth largest city. Over two-thirds of the land area is devoted to productive agriculture; emphasis is on fruit production, livestock, and dairying. The economy is further bolstered by several heavy industries which make the district one of the leading industrial centers in the state. In addition, the largest city in the district also serves as a wholesale distribution center for portions of this state and two others. On virtually all economic measures the district ranks in the upper third. Transportation is available through two interstates, two federal highways, four railroads, and a local airport with scheduled commercial flights. Higher education opportunities are available through a junior college which offers both terminal and transfer programs.

### District No. 22

This district is located in the northwestern area of the state in a wooded mountainous area. It ranks third among the districts in mining and quarrying, and fifth in terms of the number employed in manufacturing. Agricultural products include grains, livestock, and fruit. Available transportation includes two federal highways, three railroads, and commuter air service. The district also contains the state's seventh largest city which is the center of several important manufacturing establishments. Tourism is enhanced by the presence of scenic and recreational attractions. A state college is also located in the district.

### District No. 23

This somewhat isolated district is surrounded on three sides by water. The economy is essentially agricultural with one cash crop accounting for 90 percent of the cash farm income of the county. The district ranks in the bottom half on all economic measures and is near the bottom on many. No interstates, federal highways, railroads, or airports are located in the district. Tourism is promoted by the available recreational opportunities and a number of points of historical interest.

### District No. 24

Located in the southern portion of the state, this district is divided into three distinct topographical areas; uplands which support a flourishing truck crop industry; poorly drained lowlands where timber resources predominate; and tidal marshes of little value except for trapping, hunting, and fishing. The basic economy of the district is fundamentally food producing and processing. On most economic measures the district ranks in the bottom third. A single federal highway and one railroad provide transportation services to the district. No higher education institutions are located in the district.

### District No. 25

Located in the center of the state, this urban district is among the ten largest cities in the United States. As the center of trade and industry for the state, the district has a consistent first ranking by all economic measures except those associated with income. The city has maintained its rank as the largest school district in the state, but its relative percentage of the state's total population declined from 50 percent in 1920 to 30 percent in 1960. Available transportation includes two interstates, three federal highways, four railroads, and an adjoining major airport served by ten major airlines. Institutions of higher learning include eleven private institutions of varying size and two state supported colleges.

### District No. 26

Located in a relatively rural setting in the northeastern portion of the state District No. 26 has a diversified economy based on agricultural products, light and heavy industry, and transportation services. On most economic measures the district ranks near the median. Potential economic development is enhanced by the location of a large hydroelectric installation in the district. One interstate, four federal highways, and two railroads serve the district. A small community college is located in the district; but higher education opportunities and cultural, as well as economic, advantages are enhanced by the nearby medium-sized city in an adjoining state.

**District No. 27**

This district is located in the southern portion of the state in a rural area with a gently rolling countryside. The district is one of five rural areas in the state which derives its main cash farm income from a single crop. Approximately 25 percent of the total work force is employed in wholesale and retail trade. Numerous patches of forests provide sources for valuable timber and related products. A single federal highway and one railroad provide transportation services to the district. On most economic measures the district ranks in the lower third. Higher education opportunities are limited to those available through a two year community college with approximately 1,000 students.

**District No. 28**

This suburban "bedroom" community is located approximately 15 miles from the state's largest city. It covers a large geographic area and, while growing rapidly, is still relatively sparsely populated. Two major highways serve the district, providing easy access to the city. Although there is some light industry located in the district, truck farming still predominates. The district, however, is undergoing a rapid transition from a predominantly rural to a predominantly suburban character.

**District No. 29**

This rural district lies in a somewhat isolated area in the southern portion of the state. Manufacturing installations are very limited as evidenced by recent reports which indicate that no firm employs more than 50 workers. On virtually all economic measures the district ranks in the lower third. No interstates, federal highways, or railroads serve the district, and air service is limited to a small airport with no commercial service. Higher educational opportunities in the district are only available through a small liberal arts college.

**District No. 30**

This rural district is located in the rich farming section of the eastern portion of the state. In addition to the diversified agricultural economy several small industries are involved in the production of farm-related products. On most economic measures, except the value of farm products sold, the district ranks in the bottom third of the state. Highways are limited to state roads, and one railroad provides service to the district. No airport is located in the district.

### District No. 31

Located in an isolated portion of the northwestern corner of the state, this district contains some of the highest elevations and most rugged areas of the state. The terrain provides rich opportunities for both summer and winter sports. Agricultural production is very limited, and the number of industrial workers is small. The district leads the state in the production of timber and forest products. Coal is still mined in the district, but greatly reduced in quantity from previous years. The district ranks at or near the bottom on most economic measures. Available transportation includes three federal highways, two railroads, and charter service through the local airport. A community college is under construction, and a state college is located in an adjoining county.

### District No. 32

Located in the southwestern portion of the state, this rural district is relatively isolated from the rest of the state by natural geographic conditions. Food production and food processing are the principal industries with major emphasis on truck farming and poultry production. On virtually all economic indices the district ranks at or near the bottom for the state. One federal highway, one railroad, and two small airports provide transportation services. A branch campus of the state university provides a limited range of undergraduate higher education opportunities.